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THIRTIETH BIENNIAL REPORT
OF THE
NORTH CAROLINA
STATE BOARD HEALTH



JULY 1, 1942---JUNE 30, 1944

EDWARDS & BROUGHTON COMPANY
RALEIGH

MEMBERS OF THE STATE BOARD OF HEALTH

Elected by the North Carolina Medical Society

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G. G. DIXON, M.D.
Term expires 1947

W. T. RAINEY, M.D.
Term expires 1945

JOHN LABRUCE WARD, M.D.
Term expires 1947

Appointed by the Governor

HUBERT B. HAYWOOD, M.D.
Term expires 1945

H. LEE LARGE, M.D.
Term expires 1947

J. N. JOHNSON, D.D.S.
Term expires 1945

J. O. NOLAN, M.D.
Term expires 1947

LARRY I. MOORE, JR.
Term expires 1945

LETTER OF TRANSMITTAL

Raleigh, N. C., September 16, 1944.

*His Excellency, J. MELVILLE BROUGHTON,
Governor of North Carolina.*

MY DEAR SIR: — Under Authority of Chapter 118, Article 1, Section 7050, Consolidated Statutes of North Carolina, I have to submit to you for transmission to the General Assembly the Biennial Report of the State Board of Health for the period July 1, 1942, to June 30, 1944.

Yours sincerely,

CARL V. REYNOLDS,
Secretary and State Health Officer.

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THE CHRONOLOGICAL DEVELOPMENT OF PUBLIC HEALTH WORK IN NORTH CAROLINA

In the seventies Dr. Thomas Fanning Wood, of Wilmington, caught the vision of the possibilities of public health work to North Carolina. How fully he grasped the far-reaching consequences of his idea, how clearly he saw the ever-growing hosts of lives saved as a result of his vision and inspiration, we shall never know. We do know that the vision never left him, and that under its sway he worked, through the *Medical Journal* which he edited and through the North Carolina State Medical Society until his influence reached the people of the State in their General Assembly of 1877, with the effect that on February 12, 1877, the North Carolina State Board of Health was born. Ours was the twelfth state board of health to be established.

Without treating the development of the newly-established board with that thoroughness that could be termed history, we think it enough to set down here in chronological order the principal events in the life and growth of the North Carolina State Board of Health.

1877. Board created by the General Assembly. Consisted in the beginning of entire State Medical Society. Society acted through a committee. Annual appropriation, \$100.
1878. First educational pamphlet issued. Subject, "Timely Aid for the Drowned and Suffocated." Annual appropriation, \$100.
1879. The General Assembly reconstituted the Board of Health. Made it to consist of nine members: six appointed by the Governor, three elected by the State Medical Society. Term of office, five years. Dr. Thomas F. Wood elected first Secretary of the Board, May 21. Dr. S. S. Satchwell was first President of the Board. Other legislative provisions: (1) Chemical examination of water, and (2) organization of county boards of health, composed of all regular practicing physicians and, in addition, the mayor of the county town, the chairman of the board of county commissioners, and the county surveyor. Four educational pamphlets issued. Subjects: "Disinfection, Drainage, Drinking Water, and Disinfectants"; "Sanitary Engineering"; "Methods of Performing Post-mortem Examinations"; "Limitation and Prevention of Diphtheria." Annual appropriation, \$200.
1880. Much of the activity this year was devoted to efforts to control diphtheria. Prompt reporting of cases was urged. Water supplies and sewage disposal provoked much discussion. A survey of schoolhouses was carried out through the County Superintendents of Health. Most of the public schoolhouses were of one-teacher size, of frame and log construction, and none of them in rural districts had any type of privy.

1881. General Assembly passed a law requiring regulation of vital statistics at annual tax listing; law ineffective. Annual appropriation, \$200.
1882. Dr. Thomas F. Wood, State Health Officer, was President of the North Carolina Medical Society and the annual meeting was held in Concord. At this meeting the State Board of Health appointed a committee for each county of one physician to "canvass (the people) in the interest of prospective legislation" on public health matters. The subject of the annual essay presented by Dr. W. P. Beall of Greensboro was "Preventive Medicine." The chief items of public health interest this year was the emphasis placed on the effectiveness of smallpox vaccination and the increasing realization of polluted water as a source of typhoid fever.

1883. Dr. J. W. Jones of Wake Forest was elected to membership on the State Board of Health by the State Medical Society at its annual meeting at Tarboro. Dr. Jones became at once an active "friend and promoter of sanitary work." Due to his efforts, a meeting of all county superintendents of health was called in Raleigh early in the next session of the Legislature. One of the chief purposes of the proposed meeting was to urge the enactment of vital statistics legislation, and to procure a small appropriation for printing.

Several epidemics of smallpox with numerous deaths were reported—one of the most severe was in Clay and Graham counties.

1884. Dr. Wood, Secretary and Treasurer of the State Board of Health, made a pessimistic report this year. He said that "during the year little more had been done than to issue pamphlets on the subject of city sanitation." Dr. Wood pointed out that it was impossible to inaugurate public health work to say nothing of carrying it on without some money at least.

The State Medical Society adopted a resolution at its conjoint session held in Raleigh requiring the President of the Medical Society to appoint a committee "to go before the Legislature and request an adequate appropriation to be used by the Board in behalf of the high and humane objects of the Board."

1885. General Assembly made county boards of health more efficient; allowed printing privileges not to exceed \$250 annually. Annual appropriation, \$2,000.
1886. *The Health Bulletin* made its appearance in April. Pamphlet on "Care Eyes and Ears," by Dr. Richard H. Lewis, printed and distributed.
1887. Fear of yellow fever which had made its appearance late in the year through the port of Key West, Florida, where a patient with the disease had been smuggled in, was one of

chief concern to the Board. Much interest and discussion in the Board membership and throughout the state this year centered about the necessity for providing some safe method of drinking water and sewage disposal.

1888. Yellow fever epidemic in Florida and refugees to Western North Carolina demonstrated value of a Board of Health to cope with situation. Annual appropriation, \$2,000.
1889. The chief item of interest and importance to the cause of public health was a state-wide "sanitary convention" held in Raleigh February 6. It was largely attended by physicians and others from many cities and towns who were much concerned about the problems of a pure water supply and sewage disposal. The Board published an exhaustive paper by Dr. H. T. Bahnson of Salem, President of the Board, entitled: "The Public Water Supply of Towns and Cities in North Carolina." Providing refuge for hundreds of people who had fled from their homes father south on account of yellow fever was a grave problem.
1890. A widespread epidemic of influenza or as it was commonly called at the time "grip" or "La Grippe," spread over the state in January. The epidemic appeared first in Russia about November 1, 1889. By December 15, 1889, 200,000 cases were reported in New York alone. It struck North Carolina during the first week in January and in two weeks time it was reported to be raging in 68 counties.
1891. Influenza continued to be present in all sections of the state throughout the year. The conjoint session met in Asheville on May 27. The term of Dr. W. D. Hilliard of Asheville as a member of the Board expired this year. Dr. S. Westray Battle also of Asheville was elected to succeed Dr. Hilliard. Dr. Thomas F. Wood was reëlected Secretary and Treasurer for a term of six years.
1892. Dr. Thomas F. Wood, the Secretary of the Board, died August 22. Dr. Richard H. Lewis elected Secretary to succeed Dr. Thomas F. Wood, September 7. Annual appropriation, \$2,000.
1893. Legislative provisions, (1) Laws improving the reporting of contagious diseases, (2) the protection of school children from epidemics, (3) protecting the purity of public water supplies, and (4) regulation of common carriers. Legislature provided that the Governor appoint five of the nine members of the Board of Health, that the State Medical Society elect four, and that the term of office of the members of the State Board of Health be six years. The \$250 printing limit was removed. Pamphlet on quarantine and disinfection was prepared and reprinted by many of the state papers. Annual appropriation, \$2,000.

1894. A number of public health conferences were arranged and held in different towns of the state. *Bulletin* was increased from a mailing list of 800 to 1,200. Annual appropriation, \$2,000.
1895. Dr. Albert Anderson and Dr. W. T. Pate were elected bacteriologists for the Board. Annual appropriation, \$2,000.
1896. Board passed a resolution requiring chemical and bacteriological examinations of municipal water supplies. Dr. Venable, of Chapel Hill, undertook the chemical examination, and Drs. Anderson and Pate the bacteriological examination. Board also directed Mr. John C. Chase, the engineer member, to inspect all municipal water plants in the state. Annual appropriation, \$2,000.
1897. General Assembly enacted law requiring county superintendents of health to be elected by county commissioners and reduced term of office to one year. Annual appropriation, \$2,000.
1898. The address of the President of the North Carolina Medical Society this year by Dr. Francis Duffy of New Bern was devoted almost exclusively to the promotion of public health. It really marked an epoch as sounding an advanced note in the advancement of human progress.
- The State Health Officer, Dr. R. H. Lewis, devoted a great deal of time and energy to try to arouse the people of the state to the necessity for vaccination against smallpox.
1899. General Assembly improved the laws protecting public water supplies. Smallpox prevailed extensively in the state. Dr. Henry F. Long, and later, on Dr. Long's resignation, Dr. Joshua Tayloe, were employed to travel over the state, consulting with and advising the local sanitary authorities as to proper means for protecting the public. Annual appropriation, \$2,000.
1900. State Board of Agriculture, on request of State Board of Health, agreed to examine samples of water from public water supplies until Board of Health could provide its own examiner. Annual appropriation, \$2,000.
1901. State Board of Embalmers, with representatives of State Board of Health, established. County health work placed in the hands of county sanitary committees composed of county commissioners and two physicians which commissioners elected to serve with them. Term of office of county superintendent of health made two years. Annual appropriation, \$2,000.
1902. This year will be long remembered for the widespread prevalence of smallpox in virulent form. It caused many deaths in different sections in the early months of the year. In one county at least fifty people died, including many well-to-do

men. Not having any system of vital statistics reports, it is impossible to even estimate the number of cases, except from physicians' voluntary reports and death notices in the newspapers.

1903. General Assembly enacted law permitting Board of Health to charge \$5 for each analysis of a public water supply, this fee to be used in paying Department of Agriculture for services of examiner. Dr. C. W. Stiles, U.S. P.H.S., before the State Medical Society at Hot Springs, called attention to prevalence of hookworm disease in the South. Dr. J. L. Nicholson and Dr. W. S. Rankin, working under State Board of Health during fall of 1903 and spring of 1904, showed great prevalence of this disease in North Carolina. Annual appropriation, \$2,000.
1904. A stenographer was employed. One hundred and twenty thousand pamphlets on tuberculosis were printed and distributed. There was a renewal and an extension of coöperative work between the Board of Health and the state press, a number of articles dealing with hygienic and sanitary subjects being furnished the papers and published in them. Annual appropriation, \$2,000.
1905. General Assembly established State Laboratory of Hygiene; imposed water tax of \$64 on all public water companies; voted \$600 annually for the support of laboratory. Small appropriation made it necessary for the Department of Agriculture to continue to assist State Board of Health. Annual appropriation, \$2,000.
1906. The North Carolina Association for the Study and Prevention of Tuberculosis was organized. Annual appropriation, \$2,000.
1907. Two thousand dollars appropriated for the State Laboratory of Hygiene. Pasteur treatment provided. State Sanatorium for treatment of tuberculosis founded; \$15,000 appropriated for permanent improvements and \$5,000 for maintenance. A law requiring the separation of tuberculosis prisoners from other prisoners was enacted. Annual appropriation, \$4,000.
1908. January 1, Dr. C. A. Shore became Director of State Laboratory of Hygiene. Annual appropriation, \$4,000.
1909. General Assembly provided for (1) whole-time State Health Officer; (2) collection of vital statistics of towns having a population of 1,000 or over; (3) that all public water companies file plans and specifications of their plants with the State Board of Health, and that the State Board of Health pass necessary rules and regulations for the care of public watersheds and plants and furnish such rules and regulations and other advice to those having charge of public water supplies; (4) that counties provide free diphtheria antitoxin for

county indigents, and (5) that the maintenance appropriation for the Sanatorium be increased from \$5,000 to \$7,500, and an additional \$30,000 be granted for permanent improvements. Dr. Richard H. Lewis resigned as Secretary of the Board, and Dr. W. S. Rankin was elected as his successor, beginning his official work July 1. Annual appropriation, \$10,500.

1910. General effort to interest the people and state organizations in public health work. *Bulletin* increased from 3,500 edition to 10,500 edition. Addresses on public health work delivered to Conference of County Superintendents of Schools, State Federation of Women's Clubs, State Press Association, and Sanitary Sunday observed in April. Dr. John A. Ferrell elected, February, Assistant Secretary for Hookworm Eradication; began work under State Board of Health and Rockefeller Sanitary Commission.
1911. Legislature established county boards of health to take the place of the county sanitary committees; county board of health composed of chairman board of county commissioners; county superintendent of schools, mayor of county town, and two physicians selected by the three county officials to serve with them. Legislature also abolished quarantine for small-pox and improved the quarantine laws. One thousand dollars annually appropriated to contract with antitoxin manufacturers for state supply of high-grade diphtheria antitoxin, with result that price of antitoxin was cut to one-fourth former price, saving the citizens of the state over \$30,000 annually. *Bulletin* increased from 11,500 copies to 20,000 copies each edition; closer coöperation with press of state developed; regular weekly press articles prepared and sent to papers; increase in numbers of popular pamphlets for distribution. Hookworm this year largely educational through the school forces and investigated through county dispensaries; thousands of children found infected and treated. Strong sentiment began to make itself felt for better health work by counties, four counties employing whole-time county health officers. Guilford County—one of the four—began its work June 1 and was the first county in the United States to inaugurate full-time county health work. Maintenance appropriation for State Sanatorium increased to \$12,500, with \$20,000 voted for permanent improvements. Annual appropriation, \$22,500.
1912. *Bulletin* increased to 40,000 edition; number of popular pamphlets dealing with different diseases increased; press work improved; educational work of Board along all lines amplified. Secretary of Board of Health called attention of conjoint meeting of State Medical Society and State Board of Health to the relative importance of health problems and the bearing of this subject upon the proper apportionment of health

funds; instrumental in passing a resolution to the effect that pellagra was an interstate problem, not a state problem, and requesting the Federal Government to deal with pellagra as a Federal problem; resolution responsible, to considerable extent, for successful effort on part of Hon. John M. Faison's securing Congressional appropriation of \$45,000 for the study of pellagra by the Federal Government. Hookworm work extended and county funds appropriated to supplement state and Rockefeller Foundation for this work. Annual appropriation, \$22,500.

1913. General Assembly passed Model Vital Statistics Law with \$10,000 appropriation for its enforcement. County superintendent of health changed to either county physician or county health officer, depending on whether part-time or full-time service. Educational efforts of Board continued and enlarged. Hookworm work along same line as year before increased in amount. Dr. John A. Ferrell resigned as Assistant Secretary to accept position with the central office of the Rockefeller Sanitary Commission in Washington, D. C. Dr. C. L. Pridgen succeeded Dr. Ferrell. The movement for improved county health work had by this time resulted in ten counties electing wholtime county health officers. The State Sanatorium for Treatment of Tuberculosis turned over by Extra Session of 1913 to the management of State Board of Health. Annual appropriation, \$40,500.
1914. Preceding work of the Board continued. Board of Health took over management of Sanatorium; started out under many difficulties on account of the institution owing many debts and the appropriation being limited. Hookworm work changed to community work directed to the installation of sanitary privies in all homes. Laboratory began to produce and distribute free anti-typhoid vaccine. Dr. C. L. Pridgen resigned as Director Hookworm Eradication, and Dr. W. P. Jacocks succeeded him. Annual appropriation, \$40,500.
1915. General Assembly makes state vital statistics law conform to national model by requiring burial permits in rural communities; enacts legislation permitting county commissioners and towns and cities to appropriate money for support of tuberculosis citizens in State Sanatorium; provides \$15,000 for purchase and building of antitoxin plant; appropriates \$60,000 for payment of Sanatorium debts and new buildings and other improvements, and \$25,000 annually for maintenance and \$10,000 for extension anti-tuberculosis work. Educational work greatly extended: *Bulletin* now 47,000; traveling public health exhibit shown at fairs and other assemblages; press work greatly developed through employment of Miss Kate Herring, a journalist, for her whole time; stock lectures with lantern slides supplied public speakers in different parts of the state; community soil pollution work under Dr. W. P.

Jacocks stops in April, and Bureau of Rural Sanitation, with Dr. G. M. Cooper at its head, succeeds, beginning work May 1. Considerable amount of work done for improvement of prison conditions. The unit system of county health work gets a good start; over 52,000 people given three complete vaccinations against typhoid fever, and medical inspection of schools put on in six counties. Annual appropriation, \$50,500.

1916. North Carolina was admitted to the Registration Area for deaths. To the educational agencies of the Board was added a self-supporting moving picture health show. Many saw this show during the year and, seeing, believed in health work as never before. *Bulletin* reached 51,000 edition. Co-operation with University in developing a plan and putting on a home post-graduate course in medicine, giving first course to 169 doctors. Put into operation an optional system of hotel inspection, with grading and publishing scores. Continued Bureau of Rural Sanitation, giving three anti-typhoid injections to 48,000, making 100,000 immunized in summers of 1915 and 1916. Did complete medical inspection of six counties and with inspection a large amount of educational work as to sanitary and hygienic living. Secured effort by Federal Children's Bureau to develop unit of child hygiene work, the Bureau using two employees to work in Cumberland and Swain counties for about eight months. Laboratory of Hygiene buys land and erects its own building. Annual appropriation, \$55,500.
1917. The General Assembly passed the following important health legislation: Chapter 263, entitled "An act to prevent and control the occurrence of certain infectious diseases in North Carolina"; Chapter 244, entitled "An act to provide for the physical examination of the school children of the state at regular intervals"; Chapter 276, entitled "An act for the co-operative and effective development of rural sanitation"; Chapter 257, entitled "An act to prevent blindness in infancy, designating certain powers and duties and otherwise providing for the enforcement of this act"; Chapter 66, entitled "An act to provide for the sanitary inspection and conduct of hotels and restaurants"; Chapter 286, entitled "An act to regulate the treatment, handling and work of prisoners." Following the enactment of this legislation, administrative machinery, consisting of a Bureau of Epidemiology under the direction of Dr. A. McR. Crouch, a Bureau for the Medical Inspection of Schools under the direction of Dr. Geo. M. Cooper, and a Bureau for County Health work, under the direction of Dr. B. E. Washburn, was established. Dr. Washburn, an officer of the International Health Board, was loaned to the state without cost, and the International Health Board, in addition to furnishing Dr. Washburn, appropriated \$15,000

annually for County Health Work in accordance with the provisions of Chapter 276.

The United States Public Health Service in February, 1917, detailed Dr. K. E. Miller to study county health work in different sections of the country and to establish for demonstration purposes, in Edgecombe County, department of health on an economic basis easily within the financial reach of the average county.

The State Laboratory of Hygiene moved into its own building, January 15, 1917.

The state was admitted to the registration area of the Union for births in January, 1917, the Bureau of the Census having found after investigation that our birth registration was 96 per cent complete.

The special campaign against typhoid fever begun so satisfactorily in 1915 was continued. Free vaccination of the people, however, was interfered with by the difficulty in securing medical officers to do the work, the preparedness program of the Government having caused many physicians and nurses to enter the army and navy; nevertheless, a total of 30,000 citizens of the state were vaccinated as a direct result of the Board's activities, and many thousands of others were vaccinated by the physicians of the state as a result of the educational work of the Board directed to impressing the people with the value of vaccination as a means of prevention for typhoid fever.

In December, 1917, life extension work, which consisted briefly of the free physical examination of interested citizens for the purpose of advising them as to their physical condition and needed hygienic reform and medical treatment, was begun on a county basis. The funds necessary for this work were appropriated partly by the state and partly by the counties in which the life extension work was carried out. Dr. Amzi J. Ellington, of Raleigh, who at the time was a resident physician in the New York City Hospital, was employed and placed in charge of the work. Life extension work was carried out in Vance, Alamance, Lenoir, and Robeson counties, and resulted in the full physical examination of 4,000 citizens. This work was very favorably received, and the outlook for its continued development seemed excellent when, with the declaration of war and the call for physicians to enter the military service of the country, Dr. Ellington enlisted in the Medical Corps of the Army. For this reason, and for the further reason that it has been almost impossible to secure health officers during the past two years, the work was not resumed.

The educational work of the State Board of Health consisted in the issuance of eight issues of the *Monthly Health Bulletin*, each monthly edition amounting to 45,000, and a daily newspaper health article. The Bureau continued its

moving picture show exhibit. Arrangements were made for the preparation of newspaper plate, which was sent to and extensively used by 202 papers having a total circulation of 303,000.

The annual appropriation for the State Board of Health was \$60,772.16 The annual appropriation for the State Laboratory of Hygiene was \$12,500, and this, in addition to \$9,087.22 in fees permitted under the laws of the state to be paid to the Laboratory for special work, provided the Laboratory with a total annual budget of \$21,587.22.

1918. Much of the work this year was influenced by the war and had to do with preparedness. The State Health Officer visited Washington, at the request of the Council of National Defense and as chairman of a committee of State Health Officers, on a number of occasions for conferences with respect to preparedness measures, provisions for the control of venereal diseases, arrangements for coördinating the control of infectious diseases in the civilian population with their control in cantonments, and to arrange, if possible, with the Public Health Service and the Surgeon-General of the Army for preserving the personnel of state health departments during the war.

Considerable time was given to assisting Major John W. Long, Medical Aide to the Governor, in the work of organizing the Medical Advisory Boards and in interesting physicians in entering the medical service of the Army and Navy, and later in the year, in inducing the physicians of the state to become members of the Volunteer Medical Service Corps.

Partly as a result of these activities, the Surgeon-General of the Army assigned Major Joseph J. Kinyoun to assist the State Board of Health in the control of communicable diseases, the Board being under no financial obligation for Major Kinyoun's assistance; and as a result of the successful termination of the activities of various interests looking to more effective control of venereal diseases, the Kahn-Chamberlain bill passed Congress, and made available to the State of North Carolina, and without condition, \$23,988.61 for venereal disease work.

The Laboratory during this year began the distribution of a high grade of diphtheria antitoxin.

The Bureau of Medical Inspection of Schools, under the direction of Dr. G. M. Cooper, developed, and with a degree of success that we may say established, free dental clinics for the public schools of the state. The Bureau also developed to a successful extent an arrangement in the form of adenoid and tonsil clubs for the practical and economic treatment of public school children suffering from these defects.

The Bureau of Epidemiology employed two third-year medical students, equipped them with motorcycles, and put them into the field to investigate infringements of the quaran-

tine law. Sufficient convictions were obtained to impress the people with the determination of the state to enforce its health laws, and a fairly satisfactory compliance with the laws regarding the reporting of communicable diseases was brought about.

The Bureau of Venereal Diseases, paid for by the Federal appropriation, was established in September under the directorship of Dr. James A. Keiger.

Mr. Warren H. Booker, for the last seven years the efficient director of the Bureau of Engineering and Education, left in September for Red Cross work in France, the work of his bureau being continued, with the exception of the engineering work, by Mr. Ronald B. Wilson, who had been employed earlier in the year to succeed Miss Herring in assisting Mr. Booker with the journalistic work, Miss Herring having been engaged by the War Department for educational work.

Perhaps the most outstanding feature of the health work during the year 1918 was the epidemic of influenza. The epidemic began early in October and caused in October alone 6,056 deaths; in November 2,133 deaths, and in December 1,497 deaths, a total during the last three months of 9,686 deaths.

The annual appropriation for the State Board of Health for 1918 was \$73,210.38.

The annual appropriation for the State Laboratory of Hygiene was \$12,500. The Laboratory, during this year, collected \$8,532.48 in fees for special work, so that the total income of the Laboratory for this year was \$21,032.48.

1919. The General Assembly passed the following important health legislation: Chapter 71, entitled "An act to prevent the spread of disease from insanitary privies"; Chapter 192 entitled "An act to provide for the physical examination and treatment of the school children of the state at regular intervals"; Chapter 206 entitled "An act for the prevention of venereal diseases"; Chapter 213, entitled "An act to require the provision of adequate sanitary equipment for public schools"; Chapter 214, entitled "An act to obtain reports of persons infected with venereal diseases"; Chapter 215, entitled "An act to amend Chapter 671, Public-Local Laws of 1913, relating to the injunction and abatement of certain nuisances."

The Bureau of Engineering and Inspection was organized in April. The engineering work of the Board had been suspended with the resignation of Mr. Warren H. Booker in September, 1918, Mr. Booker having gone to France to engage in tuberculosis work under the direction of the Red Cross. Between September, 1918, and April, 1919, the engineering problems coming before the Board had been referred and very kindly and effectively taken care of by Col. J. L. Ludlow of Winston-Salem, the engineer member of the Board.

Mr. H. E. Miller, an engineer and a graduate of the University of Michigan, was placed in charge of the new bureau, and his brother, Dr. K. E. Miller, of the United States Public Health Service, was detailed by the Service to assist him in the organization of his work. Mr. H. E. Miller and Dr. K. E. Miller spent the spring and summer and a part of the fall in studying various types of privies, in preparing plans for the construction and maintenance of privies, and in preparing the necessary notices and literature to inform the people of the objects and requirements of the new privy law.

On May 1 Dr. A. J. Warren, health officer of Rowan County, was appointed to and accepted the position of Assistant Secretary of the Board.

About the first of the year, Miss Herring returned to the educational work of the Board. After a few months she returned to the Federal Service, and Mr. R. B. Wilson, who had left the Board work upon Miss Herring's return, was again offered a place with the Board. Mr. Wilson accepted and assumed his duties on July 1.

On August 1 Dr. A. McR. Crouch, Director of the Bureau of Epidemiology, resigned to accept a position with the city of Wilmington. Dr. F. M. Register, whole-time health officer of Northampton County, succeeded Dr. Crouch as director of the bureau.

Dr. E. J. Wood resigned this year, effective at the end of his term, and Governor Bickett appointed Dr. E. J. Tucker of Roxboro for six years term—first dentist to serve on the Board.

In September Dr. J. R. Gordon, Director of the Bureau of Vital Statistics since 1914, resigned on account of impaired health, and on October 1 the Bureau of Epidemiology and the Bureau of Vital Statistics were combined and placed under the direction of Dr. Register.

In September Mrs. Kate Brew Vaughan, Director of the Bureau of Infant Hygiene, resigned. The bureau was reorganized under an understanding with the American Red Cross and was enlarged to include, in addition to infant hygiene, the problem of public health nursing, the name of the bureau being changed to that of "Bureau of Public Health Nursing and Infant Hygiene." Under the agreement with the Red Cross this bureau was to have an available appropriation of \$12,000 a year, half of which was to be furnished by the American Red Cross and half by the State Board of Health. The personnel of the bureau and its plan of work, under the agreement, was made contingent upon the approval of both participating agencies, the American Red Cross and the State Board of Health. In December Miss Rose M. Ehrenfeld took charge of the new bureau and began its organization and work.

On October 1 Dr. Jas. A. Keiger, Director of the Bureau of Venereal Diseases, resigned and Dr. Millard Knowlton was appointed to succeed him.

The typhoid campaign carried on during the summer through previous years was continued in the summer of 1919, using third-year medical students, furnished either with automobiles or motorcycles for getting about. Campaigns were carried out in the following counties: Bertie, Carbarus, Chatham, Chowan, Columbus, Craven, Hertford, Iredell, Johnston, Lincoln, Onslow, Pasquotank, Perquimans, Randolph, Richmond, Rockingham, Stanly, Union, Warren, Wayne. A total of 49,076 were given complete vaccination.

The educational work of the Board consisted of the publication of a 48,000 monthly edition of the *Bulletin*, and the distribution of about 350,000 pieces of public health literature.

The funds available during this fiscal year amounted to \$198,549.14, of which \$102,301.98 was from state appropriations and the remainder from outside sources.

The appropriation for the State Laboratory of Hygiene for this year was \$28,500; in addition to this, the Laboratory collected in fees for special work, for antitoxin, and in water taxes a total of \$14,344.02, making a total of \$42,844.02 available for work of Laboratory.

1920. During this year there was a Special Session of the General Assembly, lasting twenty days and held in the latter part August. This Special Session passed an act amending the vital statistics law, making the fees for local registrars 50 cents instead of 25 cents for each certificate properly filed with the State Board of Health.

On January 1 Dr. B. E. Washburn, who had had general direction of the coöperative county health work and who had rendered most acceptable service, was recalled by the International Health Board and detailed to take charge of their interests in Jamaica. Dr. K. E. Miller, of the United States Public Health Service, who had been detailed in January, 1917, to organize a model county health department in Edgecombe County and then, in 1919, to assist his brother, Mr. H. E. Miller, in organizing the work of the new Bureau of Engineering and Inspection, to which was assigned the duty of enforcing the statewide privy act, succeeded Dr. Washburn as director of the Bureau of County Health Work.

In January a coöperative effort with the United States Public Health Service and the International Health Board to demonstrate the possibilities and advantages of the eradication of malaria from certain towns and cities in the eastern part of the state was begun. The terms of coöperation were that the International Health Board and the State Board of Health were to pay one-half of the expenses of the local work and the town or city in which the work was done the

other half, the Public Health Service furnishing, as its part, expert supervising personnel. The towns and cities chosen for this work were Goldsboro, Farmville, and Greenville, the budget for each municipality being respectively: Goldsboro, \$13,670.98; Farmville, \$5,000, and Greenville, \$9,000, a total investment in this work of \$27,670.98. Mr. W. A. Fuchs, Associate Sanitary Engineer, was detailed by the Service to have supervision of the work.

In February Dr. A. J. Warren, Assistant Secretary of the State Board of Health, resigned his position in order to accept the appointment of city health officer of Charlotte, N. C.

In the winter and spring of 1920 the North Carolina Landowners Association, under the progressive leadership of Mr. W. A. McGirt, of Wilmington, undertook a very extensive educational campaign against malaria, which was carried on through the public schools of thirty-eight counties in eastern North Carolina. A series of county and state prizes for the best essay on malaria by public school children were offered as an inducement to the school children to interest and inform themselves and, indirectly, their parents with regard to the importance of this disease. To make possible this work by the school children 75,000 malaria catechisms, prepared by Dr. H. R. Carter, of the United States Public Health Service, were distributed through the public schools of the eastern part of the state to the school children. Thousands of essays were written, and it is reasonable to believe that the campaign was one of the most successful public health educational attempts yet undertaken.

In June it was found advisable to separate the Bureau of Epidemiology and the Bureau of Vital Statistics which had, on account of the scarcity of health officers, been placed under the directorship of a single bureau chief, Dr. F. M. Register. Dr. Register was appointed Director of the Bureau of Vital Statistics and Dr. J. S. Mitchiner was appointed Director of the Bureau of Epidemiology.

In April the Interdepartmental Social Hygiene Board assigned to the State Board of Health several workers for making a study of vice conditions in North Carolina towns and cities and for taking such steps as were found expedient for decreasing prostitution. This group of workers was withdrawn in September on account of differences developing between them and Dr. Knowlton, chief of the Bureau of Venereal Diseases, with the understanding that another group of workers would be assigned to this work at a later date.

In June arrangements were made with the United States Public Health Service and the American Social Hygiene Association for the development of an elaborate educational unit on sex hygiene and venereal diseases designed to reach rural meetings through the use of picture films and a porta-

ble truck. An outfit consisting of several lectures and a moving picture truck began work in Cumberland County in August, and from its very beginning met a most cordial reception and gave every promise of developing into one of the most useful agencies for dealing with the venereal disease problem.

During the year anti-typhoid vaccination campaign was continued in Alamance, Bladen, Columbus, Duplin, Franklin, Gaston, Harnett, and Mecklenburg counties. Coöperative campaigns, in which the counties furnished the working personnel, were also carried on in Anson, Johnston and Rutherford counties. A total of 29,435 citizens have been vaccinated against the disease, and this does not include Columbus County, in which the work was just beginning when this report was completed.

The educational work of the State Board of Health during this year consisted of a 48,000 monthly edition of the State Board of Health *Bulletin* and the distribution of approximately 350,000 pieces of public health literature.

The funds available during this fiscal year amounted to \$342,284.33, of which \$176,152.61 was state appropriation and the remainder from outside sources.

The appropriation for the State Laboratory of Hygiene for this year was \$25,000; in addition to this, the Laboratory collected in fees for special work, for antitoxin and in water taxes, a total of \$13,698.89, making a total of \$38,698.89 available for the work of the Laboratory. The above amount being insufficient, the Special Session of the Legislature authorized a loan of \$15,000 to enable the work of the Laboratory to be carried on, making a total of \$53,698.89 available for the work of the Laboratory during this year.

1921. The Legislature meeting early in January of this year was asked by the Board to amend the state law restricting the salary of the executive officer of the Board to \$3,000 annually, so as to make the salary \$5,000. Such an amendment was passed. A further request from the Board was that legislation be enacted removing the inspection tax of forty cents from privies coming under the supervision of the Board of Health. Such an amendment to the State-wide Privy Law was also enacted. A bill was introduced in this session of the General Assembly under the initiative of Hon. Emmet H. Bellamy requiring a physical examination of all applicants for marriage and making issuance of license contingent upon the physical qualifications of the applicant. The State Board of Health approved and supported Mr. Bellamy's bill, realizing, as did the author of the bill, that the proposed legislation was but a step in the right direction and was, therefore, rather loosely drawn and left many things to be desired. The bill finally passed in amended form as Chapter 129, Public Laws of 1921.

The Governor appointed Mr. Chas. E. Waddell, an engineer, of Asheville, to succeed Col. J. L. Ludlow as the engineer member of the Board.

Perhaps the most important change inaugurated in state health administration during this year was the adoption of a cost basis for standardizing and measuring the efficiency of public health work in those counties in which the state participated financially. This new principle is fully described in the State Board of Health *Bulletin* for January, 1922, and a further discussion of cost basis for public health work is unnecessary here except, perhaps, to say that it is apparently at least one of the first attempts to introduce the cost system of industry into government.

The Bureau of Venereal Diseases, in charge of Dr. Millard Knowlton, established as a part of the war-time activities of the Board in cooperation with the Bureau of Venereal Diseases of the Federal Government, was combined with and made a part of the work of the Bureau of Epidemiology, under the general direction of Dr. J. S. Mitchener.

Funds available for the year included state appropriation, \$275,000; miscellaneous receipts, \$164,184.42; total, \$439,184.42.

1922. In order to bring the records of this department into harmony with those of other state departments, in accordance with the Act of the General Assembly of 1921, changing the fiscal year of the state so as to begin on July 1 each year, this report ends with June 30, 1922. It, therefore, covers a period of nineteen months; one full fiscal year from December 1, 1920, to November 30, 1921; seven months from December 1, 1921, to June 30, 1922. Effective February 1, the American Red Cross Society abrogated the agreement existing since 1919 by which it jointly financed, with the Board of Health, the Bureau of Public Health Nursing and Infant Hygiene. This bureau was reorganized April 1 as the Bureau of Maternity and Infancy, for its maintenance the state receiving \$27,259.66 annually from the United States Government in accordance with the Sheppard-Towner Act for the promotion of the welfare of mothers and infants, Dr. K. P. B. Bonner, of Morehead City, was secured as the director of the reorganized bureau, with Miss Rose M. Ehrenfeld as supervisor of nursing and Mrs. T. W. Bickett in charge of educational work.

The funds available during this period, and their distribution were seven-twelfths of the amounts set out under the tabulation for 1921.

The appropriation for the State Laboratory of Hygiene for the nineteen months between December 1, 1920, and June 30, 1922, was \$87,083.33; in addition to this, the Labora-

tory collected in fees for special work, for antitoxin and in water taxes, a total of \$30,872.51, making a total of \$117,-955.84 available for the work of the Laboratory.

1923. The General Assembly of 1923 enacted some important and far-reaching legislation affecting public health work in North Carolina. The most important legislation enacted this year was the act providing for an independent board of directors for the State Sanatorium for Tuberculosis, removing the direction of that institution from the authority of the State Board of Health. Facilities were also provided at the State Sanatorium for the confinement, care, and treatment of tuberculosis convicts. Other legislation included the act to provide for the sanitary manufacture of bedding, the latter act to be enforced by the State Board of Health. The Bureau of Epidemiology was again combined with the Bureau of Vital Statistics.

On March 1 Dr. G. M. Cooper was made Assistant Secretary of the State Board of Health, and Dr. J. S. Mitchiner was assigned to the Bureau of Medical Inspection of Schools, after the consolidation of the Epidemiology work, which he had directed, with the Bureau of Vital Statistics. Dr. K. E. Miller, of the United States Public Health Service, was recalled for duty elsewhere.

In order to experiment with the plan of District Health Work, an effort was made to place responsibility for all State Board of Health activities under the direction of district directors attached to the staff of the State Board of Health. This effort was continued throughout the year, but proved to be ineffective and unsatisfactory.

During the year Dr. F. R. Harris resigned from membership on the State Board of Health to become health officer of Vance County. The Board elected Dr. D. A. Stanton, of High Point, to fill the unexpired term of Dr. Harris.

In order to further carry on the important work of malaria control in a number of the counties of the coastal plain area of the state, which work was so effectively commenced in an educational capacity in 1920, the International Health Board was requested to participate in this work and to provide a director for that service. The International Health Board agreed, accepted the invitation and assigned Dr. H. A. Taylor, of Alabama, to head this division. Pamlico County was selected as headquarters for Dr. Taylor. The cost of this work was borne by the State Board of Health and Pamlico County contributing 40 per cent. each, and the International Health Board the remaining 20 per cent. The International Health Board, of course, paid the salary of Dr. Taylor.

In June Dr. J. S. Mitchener resigned as director of the Bureau of Medical Inspection of Schools and Dr. Roy C. Mitchell, who had been doing some special educational field work for the Board, temporarily succeeded Dr. Mitchener.

Early in 1923 Dr. W. S. Rankin, the State Health Officer, was invited by the Committee of Municipal Health Department Practice of the American Public Health Association to become field director for the committee in making a study of municipal health practices in the United States. This was for the purpose of working out a basis or set of principles through which city health departments could be given classification or grading, and also for the purpose of assisting such departments in their organization work. The request was brought before a special meeting of the executive committee of the Board, and it directed the Secretary to take advantage of the opportunity offered. The Board granted to the Secretary one year's leave of absence, but requested him at the same time to continue in touch as executive officer of the Board with the work of the Board.

On November 1 Dr. Rankin assumed his duties and established official headquarters in New York City for the work of the committee.

The general organization of the executive staff of the Board was continued with the Assistant Secretary, Dr. G. M. Cooper, as official head of the staff. Local health work in the eastern half of the state was directed by Dr. H. A. Taylor, and that in the western part of the state by Dr. E. F. Long, who had been assistant to Dr. K. E. Miller as director of county health work. To assist Dr. Taylor in the east, Dr. George Collins, formerly health officer of Mecklenburg County, was employed, and to assist Dr. Long in the western half of the state Dr. C. N. Sisk, formerly health officer of Forsyth County, was employed.

During the year a plan for the more adequate sanitary control of public milk supplies in the state was formulated. This work was undertaken under the direction of the Bureau of Engineering and Inspection, and Mr. Malcolm Lewis was employed to organize this work. Several changes in personnel took place this year. Dr. M. L. Iseley, who had been employed in county health department work, and Dr. Roy C. Mitchell resigned. Miss Rose Ehrenfeld also resigned.

1924. During this year Dr. Rankin continued his work with the American Public Health Association until November 1. During this period the work of the Board was directed by Dr. G. M. Cooper, serving as Acting Secretary. On November 1 Dr. Rankin returned, and during, and during that month, under the direction of Dr. Maxey of the United States Public Health Service, a school for health officers was conducted under the auspices of the State Board of Health for one week in Raleigh. This meeting was well attended, and every modern method which might be utilized in the work of a modern public health department was discussed throughout the week.

Dr. M. L. Townsend was placed in charge of the Division of Health Education. Dr. K. P. B. Bonner resigned as director of the Bureau of Maternity and Infancy.

1925. Dr. Rankin resigned, effective June 1, to accept the position of director of the Hospital and Orphan Division of the Duke Foundation. At a meeting of the Board of Health on May 30 Dr. G. M. Cooper was unanimously made Acting Secretary for an indefinite period of time to succeed Dr. Rankin. During the year Dr. E. F. Long resigned as director of county health work and Dr. C. N. Sisk, who had been assistant to Dr. Long, was placed in charge of county health work, without an assistant.
1926. On June 21 Dr. Charles O'H. Laughinghouse, a member of the Board, was elected permanent Secretary and State Health Officer to fill the unexpired term of Dr. Rankin. Dr. Laughinghouse accepted and took office October 1. Dr. G. M. Cooper, who had for sixteen months administered the work of the Board as Acting State Health Officer, continued with the service and was assigned to the Bureau of Health Education, succeeding Dr. M. L. Townsend, who resigned. On August 6 Dr. Richard H. Lewis died. Dr. Lewis had served as a member of the Board since 1885, and from 1892 to 1909 he served as Secretary of the Board. Since 1909 he had been a member of the executive committee. Dr. Lewis held his membership on the Board by appointment from the Governor. To fill the term of Dr. Lewis, expiring in 1931, Governor McLean appointed Dr. John B. Wright, of Raleigh. Among other reasons assigned for this appointment, the Governor stated that it had been the rule since the Board of Health was established to have at least one of the members of the Board a resident of Raleigh.

When Dr. Laughinghouse resigned, in order to accept the election to the position of State Health Officer by his fellow members on the Board, the remaining members of the Board elected Dr. W. S. Rankin, of Charlotte, former Secretary of the Board to succeed Dr. Laughinghouse.

1927. There were no changes in personnel or in staff organizations during the year 1927. The most important event occurring this year was the death of Dr. J. Howell Way on September 22. Dr. Way had been a member of the Board for many years and had been President of the Board for a long time. Governor McLean appointed Dr. C. C. Orr, of Asheville, to succeed Dr. Way. At the first meeting of the State Board of Health following the death of Dr. Way, Dr. A. J. Crowell, of Charlotte, was made President of the Board. In April of this year Dr. W. S. Rankin resigned as a member of the Board, and Dr. L. E. McDaniel, of Jackson, was elected by the other members of the Board to succeed Dr. Rankin.

1928. Dr. J. C. Johnson, who had been director of the Oral Hygiene Division, resigned as director of the oral hygiene work of the Board, effective December 31.

During this year a corps of nurses employed in the Maternity and Infancy Division of the Board, one-half of whose expenses were paid by the Federal Government from Shepard-Towner funds, held midwife classes in about thirty counties of the state. The nurses gave special instruction to midwives in groups, and the county authorities enacted midwife rules and regulations for the control of their practice.

The educational work of the Board was of a high order during this year. A thirty-two page *Bulletin* was issued monthly, and a moving picture machine with several films on modern health subjects was exhibited in many sections of the state.

1929. With aid secured from the International Health Board, the Life Extension Division was added to the activities of the Board this year. Dr. Frederick R. Taylor, of High Point, was made director of this division. Dr. Taylor carried this work before the medical profession in all sections of the state.

On January 1 Dr. Ernest A. Branch accepted the appointment as director of the Division of Oral Hygiene to succeed Dr. J. C. Johnson, resigned. Dr. Branch immediately set in motion reorganization plans for the oral hygiene work to include more lectures and more educational demonstration work. Dr. Branch made contacts with several of the colleges of the state and training schools for teachers.

Expenditures for the Board work this year reached the highest peak in the history of the Board, totaling about \$486,000. There were no significant changes, other than those mentioned above, in personnel during the year.

1930. This year marked many significant changes in the affairs of the State Board of Health. Early in the year Dr. C. N. Sisk, director of county health work, resigned. Dr. D. A. Dees succeeded Dr. Sisk as director of county health work. Soon after the resignation of Dr. Sisk, Dr. F. M. Register, director of the Bureau of Vital Statistics, resigned, and the work of that bureau was assigned to Dr. G. M. Cooper, in connection with his work as director of health education. On August 26, Dr. Chas. O'H. Laughinghouse, State Health Officer, died. Soon after his death, in a meeting of the Board, Dr. H. A. Taylor was made Acting State Health Officer. On September 24, following the death of Dr. Laughinghouse, the Board elected Dr. W. P. Jacocks State Health Officer to succeed Dr. Laughinghouse. On November 20 Dr. Cyrus Thompson, for many years a member of the Board, died. On December 16 the Board met and unanimously elected Dr. James M. Parrott, of Kinston, as a member to succeed Dr. Thompson.

1931. At the beginning of this year, Doctor Jacocks having declined to accept the position of State Health Officer, to which he had been elected by the Board on September 24, 1930, a bill was introduced in the Legislature abolishing the State Board of Health as then constituted. This bill was passed and became law during the session of 1931. With the enactment of the new law the terms of the members of the old Board were automatically terminated. Under this new law governing the state health work, legislative machinery providing for the establishment of a new organization to carry on the public health work of the state was enacted. The new law differs in many respects from the old law under which the Board had operated for so long. However, the most important provision of the old law was retained; that is, the non-political character of the Board and the retention of the permanency of the policies of the Board, although shortening the terms of office and making it impossible for the Board to become a self-perpetuating machine.

The important provisions in the new law under which the Board of Health work is now operating are as follows: The Governor still retains the power to appoint five of the nine members of the Board, the maximum term of office being four years instead of six, as under the old law. The Medical Society of the State of North Carolina still retains the power to elect four of the nine members of the Board, the same conditions as to term of office to obtain here as in those appointed by the Governor. It was recommended to the Governor, although not written into the law, and Governor Gardner accepted the suggestion, that he appoint one member from the State Dental Society and that he appoint a man recommended by that society. This is equivalent to allowing the State Dental Society to name one of the members, but still leaves the balance of power in the hands of the Governor. This seems to be a very satisfactory arrangement.

Another important change is that the Board still elects the State Health Officer, but it can only become effective upon the approval of the Governor. The term of the State Health Officer, along with members of the Board of Health, was restricted to four years.

Following the adjournment of the Legislature, the Governor appointed the following named members: Drs. J. T. Burrus, High Point; H. Lee Large, Rocky Mount; J. N. Johnson, Goldsboro, the dental member; Professor H. G. Baity, of the University of North Carolina and Mr. J. A. Goode, a druggist in Asheville. The State Medical Society at its first meeting after the adjournment of the Legislature elected the following physicians to membership: Drs. James M. Parrott, Kinston; Carl V. Reynolds, Asheville; S. D. Craig, Winston-Salem; L. B. Evans, Windsor.

It will be noted that Dr. Parrott was the only member of the outgoing Board honored with election to membership on the new Board.

On May 28 the new Board met and organized. On that day it unanimously elected Dr. James M. Parrott State Health Officer. Dr. Parrott took the offer under consideration for a period of two weeks. On June 11 the Board met again; Dr. Parrott accepted the election and agreed to assume office on July 1. Dr. Parrott resigned his membership on the Board before being elected to the position of State Health Officer, and under the provisions of the new law the executive committee of the State Medical Society selected Dr. G. G. Dixon, of Ayden, to serve in Dr. Parrott's place until the 1932 meeting of the State Medical Society. It will be noted that this is an important variation from the provisions of the old law. Under the old law the other members of the Board held the authority to name a successor, whether a member resigned or died. Under the new law the Governor names his vacancies in his list and the executive committee of the State Medical Society is permitted to name a successor to serve only until the first meeting of the State Medical Society following.

In the meeting of June 11 the new Board found it necessary to eliminate some members of the staff and to make some consolidations, on account of reduced appropriations for the Board work. The services of Dr. D. A. Dees and Mr. R. B. Wilson were dispensed with, effective July 1. The Board reorganized the staff and made many consolidations. The new reorganization follows:

The Board reorganized the work into divisions, making many consolidations and increasing the duties of the directors of each division. Following are the divisions organized: Administrative Officer, Dr. James M. Parrott; Director Division of Laboratories, Dr. C. A. Shore; Director Division of Preventive Medicine, Dr. G. M. Cooper; Director Division of Oral Hygiene, Dr. Ernest A. Branch. The division of County Health Work and Epidemiology was temporarily assigned to Dr. H. A. Taylor, but on August 3 Dr. Taylor resigned and Dr. John H. Hamilton, health officer of New Hanover County, was appointed director of this division. The position of director of Division of Sanitary Engineering was filled on July 14 by electing Mr. Warren H. Booker, who had formerly headed that work, to succeed Mr. H. E. Miller.

The election of Dr. Parrott was received throughout medical and public health circles of the entire state with enthusiasm. Under his able direction the work of the Board during the last half of this year moved with a precision which was gratifying to all the friends of public health work in the state.

1932. The year 1932 was uneventful in public health work. The term of none of the members of the Board expired this year,

but all members continued their service just as the Board was constituted at the close of 1931.

The International Health Board awarded a scholarship to Dr. J. C. Knox for a year's special Public Health Work at Harvard and to Dr. R. T. Stimpson for a year's special work in the School of Hygiene at Johns Hopkins.

Following the very favorable reception of Doctor Parrott's annual report at the conjoint session of the State Board of Health and the State Medical Society, which was presented at Winston-Salem in April, the work of the Board was carried on on all fronts with satisfactory results, although on account of reduced appropriations many activities carried on in previous years had to be curtailed or definitely eliminated.

The death rate in North Carolina for 1932 was 9.6 per 1,000 population. This is the lowest death rate ever before recorded in North Carolina. The trend in typhoid fever death rates has been consistently downward from 1914 to 1930. This year there were three more deaths than in 1931, there occurring a total of 158 deaths from typhoid fever. The increase in population, however, offset the slight increase in number, and the rate recorded was slightly lower than 1931. The cases and deaths from diphtheria this year were also the lowest of any previous year, although progress in the elimination of these diseases has not been so satisfactory as it should have been. Deaths from pellagra continue to show a marked decline.

This year is the third year of the so-called financial depression, and it is too early to record any opinion as to what effect unemployment and decreased income and rather widespread suffering may have on the health of the people of the state. It is not too much to say, however, that the effect will be felt more severely by the children than by any other class of the population.

The infant mortality this year was 66.4 per 1,000 live births. This is so far the best record the state has ever made. The maternal mortality remains high, and indications are that with decreased expenditures for maternal and infant hygiene the rates, particularly for infant deaths, will rise again, pushing the state back among those having an excessive infant death rate.

Expenditures for this year for all purposes by the Board were \$315,276, of which amount \$262,438 represented appropriations. This amount was just a little more than half of the total expenditures made by the Board of Health for the fiscal year ending June 30, 1930.

1933. The events of outstanding importance to the Board of Health this year was the death of Dr. C. A. Shore, which occurred on February 10. For twenty-five years Doctor Shore had been director of the State Laboratory of Hygiene. He had built the work of the laboratory during these years up to a

point where its prestige and usefulness was equal to that of any other public health laboratory in America.

Doctor Shore served longer as a member of the executive staff than any other man who has ever been connected with the State Board of Health. He held the confidence and esteem of the medical profession as well as the general public to a marked degree. He was a man of extraordinary ability, and much of the success of the public health work in North Carolina may be attributed to his fine and wholesome service.

Suitable tribute has been paid to Doctor Shore and recorded in other publications of the Board and of the State Medical Society. One event in this connection, however, should be recorded here, and that is that by legislative action all buildings of the State Laboratory of Hygiene are hereinafter to be known as the Clarence A. Shore Laboratory, in memory of his distinctive service.

A few weeks after the death of Doctor Shore, Dr. John H. Hamilton, director of County Health Work, of Vital Statistics, and of Epidemiology, was made director of the laboratory work. Doctor Hamilton, on assuming his duties as director of the Laboratory, resigned the duties of director of County Health Work and of Epidemiology, but retained, however, with the assistance of Dr. R. T. Stimpson as statistician and field director, the Bureau of Vital Statistics. Dr. D. F. Milam, a consultant assigned to the State Board of Health by the International Health Board, was made acting director of the Bureau of Epidemiology in place of Doctor Hamilton. Doctor Milam had as his assistant Dr. J. C. Knox. Dr. M. V. Ziegler, consultant assigned to the Board by the United States Public Health Service, assumed the duties of acting director of County Health Work to succeed Doctor Hamilton. During this year Mr. W. D. Riley, assigned to the work as Venereal Disease Control Officer by the United States Public Health Service, organized his work and succeeded in making an important contribution to the work of the Venereal Disease Control in North Carolina.

The following changes in personnel of the State Board of Health took place during this year: Dr. W. T. Rainey, of Fayetteville, was elected by the State Medical Society for a four-year term to succeed Dr. L. B. Evans, of Windsor, whose term expired this year. Dr. S. D. Craig was reelected for a term of four more years. The Governor reappointed Dr. J. N. Johnson, dental member of the Board, for another term, which will expire in 1937. The Governor appointed Dr. Hubert B. Haywood, of Raleigh, for a four-year term, to take the place of Dr. J. T. Burrus, of High Point. The Governor also appointed Mr. James P. Stowe, a druggist of Charlotte, for a four-year term, expiring in 1937. Mr. Stowe succeeded Mr. J. A. Goode, a druggist of Asheville. Dr. Carl V. Reynolds succeeded Dr. Burrus as President of the Board.

On July 1 Drs. Knox and Stimpson returned to the Board work and resumed their places after satisfactorily concluding their year's scholarship work at Harvard and Hopkins, respectively.

The year was not marked by any widespread outbreak of epidemic disease, and notwithstanding a continuation of the financial depression, the work of the State Board of Health held up fairly well. The appropriations being lower this year than before for many years, much of the personnel service had to be reduced. A material reduction in state aid to County Health Work caused considerable contraction of the activities of County Health Department Work, but for the most part the morale of State Board of Health employees as well as the county health employees has held up remarkably well.

The Legislature, meeting for an extended session following its opening in January, made drastic reductions in appropriation to all state health work and reduced the salaries of all state health employees. This was said to be necessary in order to balance the state budget and to maintain the state's credit.

The total expenditures for the Board of Health this year, that is, for the fiscal year ending June 30, were \$291,786. Of this amount \$225,274 was appropriated by the Legislature. It will be noted that this sum was less than half of that appropriated and spent for the fiscal year ending June 30, 1930.

1934. The event of greatest importance to the State Board of Health and to the health work throughout the state in this year was the death of Dr. James M. Parrott and the election of Dr. Carl V. Reynolds as his successor. Dr. Parrott assumed the duties of State Health Officer on July 1, 1931. He had thus served a little more than three years and four months at the time of his death. Dr. Parrott was the first State Health Officer to serve under the new, or reorganized, Board of Health. He was stricken with an attack of angina pectoris early in December, 1933. The last eleven months of his life, therefore, were ones of recurring illness and courageous fortitude in remaining at the helm of the Board of Health work. On the occasion of the first illness, with the consent of the members of the State Board of Health, he designated Dr. G. M. Cooper as Acting State Health Officer to be the responsible head of the work in such periods as he was physically unable to attend to the duties of the office. The following sketch concerning Dr. Parrott and his work, written by the Editor, was published in the *Health Bulletin*:

"The death of Dr. James M. Parrott, State Health Officer of North Carolina, occurred on Wednesday evening, November 7, 1934. Doctor Parrott had been health officer of North Carolina for a little more than three years. He was so active mentally and so near and dear to his co-workers here at the office that to me, even yet, it seems impossible and unbeliev-

able to think that he is dead. Nearly thirty years ago I 'took' the State Board examination for license to practice medicine. He was a member of that board. From then on I looked on him as one of the big men in the medical profession. He held every office within the gift of his profession and loved it and served its interests with a passionate devotion.

"He took over the direction of the work of the State Board of Health in one of the darkest hours in the history of the Board. He brought to the affairs of the Board a new kind of leadership, a fresh outlook, a new viewpoint, and a breadth of vision which served notice on the world that the Board had a resourceful and able executive in charge. Although he came to the Board work without previous experience in an administrative capacity of this type, and knowing little or nothing of the practical workings of a modern public health organization, his chief contribution, which will be duly recorded in the history of this period, to the cause of public health advancement was his stand for the professionalization of public health work.

"Before he had been here sixty days, he realized that all department divisions as well as all county health offices should be manned by physicians technically trained and experienced in public health work. It became necessary for him to oppose the ambitions of some of his lifelong friends in the medical profession, which hurt him; but it may be said to his credit that he stood four-square for competently trained men as public health officials.

"On assuming office, he realized that he had some very unpleasant duties confronting him in reorganizing the work of the Board. He soon demonstrated that he had convictions and the courage to back them up. When he laid down his armour for the great adventure, he left an organization of his own building functioning at top speed. He proved to his fellow workers here that he was tolerant to everything but laziness and lying and inefficiency. Being a man of clean personal life, and governed in all his actions by a strict sense of honor, he naturally expected such qualities in his staff and other subordinates.

"For the past year he struggled against the malady which finally ended his life, and at the same time he felt keenly his official responsibility. He knew all during that last year that, in justice to himself and his family, he should resign and be relieved of the extra tax on his failing strength. On the other hand, he felt that his work was not quite done. He saw many essential features of public health work sacrificed to a program of questionable economy. He did not question the good intentions of the Governor, the Budget Bureau, nor the Legislature, but he felt that the time had come to put an end to the further needless sacrifice of human life for the lack of intelligent preventive efforts. He had a conviction

that the incoming General Assembly would see eye to eye with him. He was ready to submit a program of far-reaching importance to the people of the state. It could not be. His big brain is forever inactive. His profound knowledge of the public health needs of the people is left for his successor to acquire for himself.

"No man could build for himself a better monument than Doctor Parrott did in the record of worth-while work well done. In his death the state loses an honest public servant, and I lose a warm and understanding friend whose confidence was more precious to me than the riches of Araby."

Following Dr. Parrott's death, the State Board of Health assembled in Raleigh on November 10, 1934, and unanimously elected Dr. Carl V. Reynolds, who at that time was serving as President of the Board, to the position of State Health Officer and Secretary and Treasurer of the State Board of Health. Dr. Reynolds immediately accepted and assumed his duties at once. The following Editorial appeared in the *Health Bulletin* in January, 1935, concerning Dr. Reynolds and his work. It is herewith reproduced in order that this chronological record may be complete.

"Doctor Carl Vernon Reynolds, of Asheville, on November 10, took the oath of office and immediately assumed his duties as Acting State Health Officer, succeeding Dr. James M. Parrott, who died November 7. Doctor Reynolds was unanimously elected to the position by his fellow members on the Board.

"Doctor Reynolds is a native of Asheville. His father was a successful Asheville physician who died when Doctor Reynolds was only three years old. Doctor Reynolds obtained his literary education in the private schools of Asheville and Wofford College, Spartanburg, South Carolina. He received his medical education at the college of the City of New York, graduating in medicine there in 1895. After his graduation he took a postgraduate course in London, England. Doctor Reynolds located in Asheville for the practice of medicine, specializing in pulmonary tuberculosis. His skill in combating that disease has been widely recognized by the medical profession. An example of their confidence was his election as president of the North Carolina Medical Society, in which place he served with distinction in 1920.

"On beginning practice he at once became interested in health work. His first connection was with the city health department in 1896. Following that period, for more than twenty years he served as city health officer of Asheville, in which capacity he rendered his city and the whole state important and permanent service. Some of his contributions to public health may be cited, as follows:

"He organized the first crusade against the common house-fly ever undertaken anywhere.

"He assisted in drafting the first milk ordinance for Asheville.

"He secured progressive sanitary laws.

"He put through the compulsory vaccination law requisite to school attendance.

"He secured the adoption of a bread-wrapping ordinance and one requiring the tuberculin testing of cows.

"He saw typhoid fever drop from an average of two hundred and seventy cases a year in the city of Asheville to about five while he was city health officer, and saw smallpox practically eliminated.

"We enumerate these things so that the people of the state may know they have a well-trained health officer at the head of the State Health Department—one fully worthy of confidence and support."

The general routine work of the State Board of Health during this year was satisfactory and successful in every way. Dr. D. F. Milam, who had been loaned to the State Board of Health by the International Health Board and who had been acting as State Epidemiologist, was transferred to other fields and on the first of July Dr. J. C. Knox, who had been Assistant in the Division of Epidemiology, became State Epidemiologist.

Dr. M. V. Ziegler, of the United States Public Health Service, who had also been loaned by that organization as a consultant in the Division of County Health work and who had been Acting Director of that Division, was transferred back to Washington about the first of September. Dr. R. E. Fox, who had completed a postgraduate course in the Public Health School of Harvard University, was made director of the Division of County Health Work.

Dr. R. T. Stimpson, who had also successfully completed a postgraduate course in the School of Public Health of Johns Hopkins University, and who had been acting as Assistant in the Department of Vital Statistics, was made Director of that Division.

On November 10, at the time Dr. Reynolds was elected State Health Officer, Dr. G. M. Cooper was elected Assistant State Health Officer. Dr. Reynolds, of course, had to resign from his place on the Board in order to accept the office of State Health Officer. To succeed him as President, Dr. S. D. Craig of Winston-Salem was elected to that position. Dr. J. N. Johnson of Goldsboro, dental member of the Board of Health, was elected to the place of Vice President of the Board. The law provides that in case of a vacancy occurring on the State Board of Health among the membership elected by the State Medical Society, that the Executive Committee of the Medical Society of the State of North Carolina shall have the authority to appoint a successor to serve until the next ensuing meeting of the State Society. In this case, the

vacancy coming so close to the annual meeting of the State Society and the Board of Health on the following May 1 and there being no regularly scheduled meeting of the Executive Committee of the State Medical Society, it was decided to defer the election of a successor to Dr. Reynolds to the meeting of the Society the following May 1.

1935. Dr. Carl V. Reynolds served as Acting State Health Officer, the Governor having deferred the approval of his election the previous November 10, 1934, but at the annual meeting of the State Board of Health, which was held in Pinehurst May 7, 1935, Dr. Reynolds was unanimously elected State Health Officer. His election was for a full four-year term to begin on the first of July following. The Governor immediately approved the election of Dr. Reynolds to be State Health Officer for the full term as stated.

At the meeting of the conjoint session at Pinehurst on Wednesday, May 8, Dr. Grady G. Dixon was reelected to succeed himself to membership on the State Board of Health for a term of four years.

Dr. J. LaBruce Ward of Asheville was elected for the four-year term to succeed Dr. Carl V. Reynolds, resigned.

In this year an important development in public health work was the experimental course put on in the school year of 1934-1935 at the University of North Carolina, under the auspices of the Public Health Administration, of a course of instruction designed to prepare physicians for positions as health officers. The courses in this school met with such success, plans were perfected to enlarge the scope of this new school as a part of the Medical School at the University. A fuller description of the inauguration of this school will be found under the records for 1936.

During this year following the enactment of the National Social Security law, plans were worked out for an expansion of the work of all the divisions of the State Board of Health, through financial aid coming through the Children's Bureau and the United States Public Health Service at Washington. It was a year which noted much activity in public health work all throughout the state, and the perfection of plans, state and local, for extending health department activities.

A Division of Industrial Hygiene was tentatively established in September of this year. The organization of this division resulted from an amendment to the Compensation Laws of the state by the 1935 General Assembly. This legislation made disablement or death by occupational disease interpretable as an injury by accident and thus compensable. For the execution of this legislation a sum of \$10,000 was appropriated by the Legislature. The Industrial Commission appreciating that a problem of preventive medicine was involved, engaged in a series of conferences with the State Board of Health and Officers of the United States Public

Health Service. The discussions culminated in the \$10,000 appropriated for the administration of the occupational disease legislation being placed at the disposal of the State Health Officer. With this money, an Industrial Hygiene program was inaugurated as an activity of the State Board of Health. This arrangement was made with the understanding that the work would be subsidized by the United States Public Health Service when Social Security funds should become available. To begin the work of this division and to prepare the program for enlargement to its full scope, Dr. H. F. Easom of the State Sanatorium for Tuberculosis Medical Staff was selected as the Director of the division. Mr. M. F. Trice, formerly the Division of Sanitary Engineering of the State Board of Health, was made Engineer of this new division.

1936. What may be termed the outstanding event of importance for the first half of this calendar year covered in the period of this report may be said to be the definite establishment of the new public health department at the University of North Carolina and the selection of Dr. Milton J. Rosenau as its director. This new department, of course, is an integral part of the School of Medicine of the University of North Carolina. The March issue of the *Health Bulletin* published the following descriptive news item of the inauguration of this department:

"The most important development in public health circles in many years for this section of the South is the establishment at Chapel Hill of a department of public health in connection with the School of Medicine, and the selection of Dr. Milton J. Rosenau as its director. This development has been made possible by the coördination of the staffs of the faculties of the North Carolina State Board of Health and the schools of medicine and engineering of the University of North Carolina.

"The new department, while an integral part of the University School of Medicine with Dr. C. S. Mangum, Dean, will be under the personal direction of Dr. Rosenau. Dr. Rosenau is generally regarded as America's foremost authority on public health. His books on preventive medicine are used everywhere as standard textbooks in all schools of public health. Until his retirement recently from that faculty he had been head of the famous Harvard School of Public Health for many years.

"For a long time the officials of the State Board of Health have worked hard to secure the establishment of such a school. The necessity for it has been apparent to all responsible health workers. The chief credit for success in launching the enterprise should go to Dr. Charles S. Mangum, Dean of the University Medical School, and to Dr. Carl V. Reynolds, State Health Officer. Both of these officials have worked hard

and coöperated with each other in overcoming all difficulties in the way of the establishment of the new department.

"In the opinion of Drs. Mangum and Reynolds the development was in part made possible by the success of the course put on in the school year of 1934 and 1935 at the University under the auspices of the School of Public Administration. The first course put on with the teaching aid of the Schools of Medicine and Engineering of the University and members of the staff of the State Board of Health comprised a course of instruction for physicians in public health administration and extended over a period of twelve weeks. The work was so excellently done that they received recognition from the United States Public Health Service which assigned several of its applicants for postgraduate work to take the second course.

"We hope and believe that this enterprise under Dr. Rose-nau's direction will expand into one of the most important departments of public health education in the entire country. The need for special training for physicians who want to enter public health work is great. Efficient public health departments, National, State and local in modern conditions of living are an absolute necessity. There are large numbers of young physicians who with proper postgraduate training could make excellent health officers.

"The success of the new department at Chapel Hill will go a long way toward establishing an efficient system of public health work on a sound basis throughout the entire southeastern section of the country."

On February 1 of this year, funds from the Social Security Act became available to the State Board of Health through the Public Health Service and the Children's Bureau at Washington. In addition to adding a division of field training of public health nursing in connection with the new department of public health at the State University, a department of Public Health Dentistry was also established in connection with the Public Health School at Chapel Hill. This is said to be the first school of like character in the country. The County Health Department was enabled through the Social Security subsidy from Washington to aid all the whole time county health departments in an expansion of their work. The Division of Preventive Medicine employed Mrs. J. Henry Highsmith to begin work on February 20 as an Assistant in the field of health education. The work of this division, of course, took on enlarged activities. Plans were immediately set in motion to establish special county nurses in counties having no whole time health organization as special demonstration service for such counties. Plans were also launched to establish Maternity and Infancy Centers in many sections of the state as Demonstration Centers, looking toward an

eventual lowering of the infant and maternal death rates in this state.

A sum of \$17,500 of Social Security money was appropriated by the United States Public Health Service for the Division of Industrial Hygiene. Dr. M. T. Plyler was employed as an Assistant Medical Director in that division and Mr. C. R. Matheson as a Medical Technician. Both of these men had been employed on the staff of the North Carolina Tuberculosis Sanatorium. Up to the first of July more than 150 plants involving siliceous dust hazards had been surveyed. The entire asbestos industry in the state involving five plants had been studied, in coöperation with the United States Public Health Service, a granite cutting establishment investigation made, and a foundry study inaugurated. There were 525 asbestos textile workers and 46 granite cutters examined during the investigatory work. In addition, pre-employment examinations have been made of approximately 400 workers. All persons examined have x-ray films made of their chests. During this work nearly 300 atmospheric dust samples were analyzed. During the period, the physician and the engineer attended a four week's special course on Industrial Hygiene given by the Public Health Service in Washington. The division has installed a complete office equipment, as well as portable equipment necessary for successful execution of this important work. The new division is housed in the basement of the State Board of Health Building.

On April 1 of this year, the State Board of Health established a service for crippled children. This followed the approval in late March of the North Carolina Plan for Crippled Children prepared by the State Board of Health and submitted to the United States Children's Bureau. This plan was a prerequisite of the Children's Bureau toward participation by the state in the distribution of Social Security appropriations for this purpose. Dr. G. M. Cooper of the Division of Preventive Medicine was designated as Medical Director of this service, and Mr. J. T. Barnes was employed by the State Board as State Supervisor in charge of administrative duties of this service. An advisory committee representative of the Medical, Health, Welfare, and lay interest of the state in the problem of the crippled child was formulated to advise in the execution of this program. Prior to June 30, public clinics were arranged in various centers of the state under the direction of the State Board of Health. Coöperation had been arranged with the North Carolina Orthopedic Hospital and was being carried out satisfactorily.

Under the provision of the Children's Bureau regulations, an advisory committee was secured by the Director of the Division of Preventive Medicine for the purpose of advising from time to time on the general program of maternal and

child health service work. This committee held its first meeting on March 27 at the State Board of Health in Raleigh. Representatives from the following organizations were present: State Medical Society, State Dental Society, State Public Health Officers Association, State Nurses Association, State Federation of Women's Clubs, State Parent-Teacher Association, State Welfare Department, Division of Pediatrics and Obstetrics of the State Medical Society. On or before June 30, the enlarged program of all the divisions of the State Board of Health was well underway.

1937. There was no event of outstanding importance occurring in the year 1937. Few changes in the staff or the sub-staff of the State Board of Health have occurred. Following the expansion of service throughout the year 1936 with the aid of Social Security funds coming through the United States Children's Bureau and the United States Public Health Service at Washington, a tremendous amount of work was done during the entire year 1937 in expanding the work of the health department throughout the state, an increased number of nurses were employed, additional county health departments were established and more intensive efforts were made along all lines than in any previous year. The new School of Public Health Administration at the University of North Carolina under the direction of Dr. Milton J. Rosenau, aided materially by Dr. Carl V. Reynolds, State Health Officer, and the faculty of the Medical School of the State University, made substantial and satisfactory progress. An increasing number of sanitary engineers, sanitary inspectors, and health officers from this state and other states in the southeastern regional territory were trained at Chapel Hill.

An Advisory Committee of leaders in different organizations in North Carolina, including such organizations as the State Medical and Dental Societies, Public Health Association, Parent-Teacher organizations, Women's Clubs, and the State Nurses Association, together with some independent members of the medical profession in the field of pediatrics and obstetrics and orthopedic surgery, was organized and held its first satisfactory meeting during this year.

Dr. T. C. Worth joined the staff of the Division of Preventive Medicine on September 21, 1936, and served until April 15, 1937, in the capacity of assistant to Dr. Cooper. Dr. Worth aided materially in assisting in the organization of Maternity and Infancy Centers in some forty counties of the state and contributed a great deal toward strengthening the department work. Upon Dr. Worth's departure on April 15 to continue his postgraduate education in Boston, Dr. Roy Norton, who had been with the Division of County Health Work for about a year, and was formerly health officer of Rocky Mount, succeeded Dr. Worth. Miss Mabel Patton, a qualified nurse, joined the staff of the Division of Preventive

Medicine as a consultant nurse representing the Children's Bureau. Dr. W. J. Hughes, a colored physician whose services for work in the health education field in the Department of County Health Work was made possible through contribution by the Rosenwald Fund and who joined the staff on January 1, 1936, was able to achieve substantial progress in his work with the colored population of the state. This was the first time a colored physician had been admitted to membership on the sub-staff of the State Board of Health, and the results of work in 1936 and 1937 have fully justified his employment. Dr. R. L. Robinson joined the sub-staff of the Division of Industrial Hygiene on April 1, 1937, to succeed Dr. M. T. Plyler of that Division. Mr. W. H. Richardson, an experienced newspaperman who at one time was Secretary to Governor Morrison for his four years in the Governor's office, joined the Administrative Staff in the department exclusively conducted by the State Health Officer. Mr. Richardson has been a valuable addition to the staff and he has succeeded remarkably well in interpreting technical problems to the lay readers in hundreds of articles in the daily and weekly press of the state. Dr. G. M. Leiby, who had been Assistant District Health Officer in the Haywood-Jackson-Swain District with headquarters at Bryson City, joined the sub-staff of the Department of Epidemiology in the fall of 1936 and after some field experience was sent to the Hopkins School of Public Health for a year's special studies in syphilology. Dr. F. S. Fellows of the United States Public Health Service was loaned to the State Board of Health as consultant in the Department of Epidemiology in the field of venereal disease control. Miss Margaret Thompson, who holds a master's degree in home economics and nutrition work from the University of Iowa, joined the sub-staff of the Division of Preventive Medicine in October, 1937. On March 15, 1937, Miss Frances R. Pratt, a specially trained nurse under the auspices of the State Maternal Health League, joined the sub-staff of the Division of Preventive Medicine. Miss Pratt's work was financed by an individual contribution from an outside agency. Her work has been to organize through the medical profession and the local health officers on a voluntary basis a system of contraceptive control work when based on medical needs. Her work has been very successful and it has been a welcome and needed addition to the staff work.

On December 16, 1937, following Legislative Provision in the 1937 session of the Legislature, \$160,000 in bonds were sold for the purpose of building a new plant for the State Laboratory on the grounds adjacent to the present State Board of Health building on Caswell Square, Raleigh. A PWA grant of about \$130,000 additional was received and work on the buildings was expected to be completed within the year 1938. A farm of 280 acres on the Raleigh-Cary

paved highway was purchased and provision made for farm buildings to care for the animals used in the production of vaccines and serums.

On December 17, a conference of Public Health Officers was called at Raleigh for the purpose of discussing and making decisions concerning various field work, jointly affecting the state and local health departments. This conference was so successful that it was voted to make it an annual affair.

During the year a central general filing system was established and put into effect under the direct supervision of the State Health Officer and the Administrative Division of the Board of Health. This is proving to be a very satisfactory and progressive step.

Malaria was made a reportable disease and a malaria inspection and control unit was established in the Department of Epidemiology July 1, 1937. Effective also in 1937 was the new plan of the Division of Vital Statistics with reference to the notification of birth registration certificates to parents. Instead of waiting for a parent to write to the department to inquire if the birth has been reported and to send 50c for certificate, the plan was adopted of sending to each parent whose baby's birth was reported properly a small neat certificate of the baby's birth. This was through an arrangement with the Bureau of the Census of the United States Government. Franking privileges are allowed in this work. It simply informs parents that their babies' births have been properly recorded and the idea is through this method to reach many of those parents whose babies' birth have never been reported and get them to send in the reports.

There were no changes in the membership of the State Board of Health this year. All members whose term expired were reelected by the State Medical Society or re-appointed by the Governor, for additional four-year terms.

The total expenditures for the State Board of Health during the fiscal year ending June 30, 1937, were \$881,484.01. Of this amount \$287,747.04 was appropriated by the Legislature, \$191,943.85 was by the United States Children's Bureau, \$312,210.42 by the United States Public Health Service, and finally \$89,582.70 from fees received by the Laboratory in water taxes, etc., and other miscellaneous items.

1938. During 1938, the extension and consolidation of health work in all departments of the State Board of Health was further accomplished. This year two outstanding events may be recorded. First, the Zachary Smith Reynolds Foundation decided to donate its income from a fund of about seven million dollars to the State Board of Health to aid in a long time program of syphilis control. The initial donation from this fund by the officials of the foundation to Dr. Reynolds was a check of \$100,000. This philanthropy will bring to realization one of the finest dreams of Dr. Carl V. Reynolds, State

Health Officer. It promises to enable the State Board of Health to accomplish in the near future some of the objectives that have sometimes seemed to be long years off. A long time before the Government began to realize its responsibility in the prevention of disease and the preservation of the health of its citizens as a means of bringing about better social and economic conditions and the promotion of human happiness, philanthropists such as Rockefeller led the way. This gift of the Reynolds Foundation, however, affords the practical means of enabling the State Board of Health to organize in collaboration with the various city and county health departments of the state an effective system through which the venereal diseases may be eventually controlled in this state.

The other event in the same connection was the passage by the United States Congress early in 1938 of a bill known as the LaFollette-Bulwinkle Bill, sponsored and carried through the lower House of the United States Congress by Representative A. L. Bulwinkle of Gastonia who has long represented his district in the lower House of Congress. Through the provision of this bill the state was able to receive during the year about \$80,000 additional funds for work in syphilis control. The proceeds of these funds enable the State Board of Health to attack the ravages of syphilis even in the prenatal stages by treating syphilitic mothers early enough in pregnancy to prevent the birth of hopelessly syphilitic babies. It is probably a fact that the benefaction of the Smith Reynolds Foundation is the largest single gift for this particular purpose that has ever been made by any public or private organization in this country. The cause is not only a worthy but a pressing one. It takes money to control and eliminate such diseases as yellow fever, typhoid and syphilis.

The School of Public Health Administration of the State University at Chapel Hill has made such material progress that it became necessary on the first of September this year to employ an additional full-time professor in that department. Dr. Roy Norton, who for the preceding fifteen months had been an assistant in the Division of Preventive Medicine where he has done excellent work, was persuaded to accept the professorship. The State Board of Health reluctantly agreed to Dr. Norton's transfer in view of the fact that the School of Public Health Administration is of such far-reaching importance that it should have the services of the very best available talent in the medical profession of North Carolina. Dr. Norton is admirably equipped for this important work. There are now five full-time professors in this division of the University.

Under the persistent work of Dr. Reynolds a stationary exhibit has been erected in the large halls of the central building of the State Board of Health, at Raleigh, an exhibit

which is an education in itself. It demonstrates the work of all the departments. Some of the state's foremost artists were called into the work and the officials of the National Youth Administration provided a great deal of the actual work at little cost to the State Board of Health. It would pay any citizen of North Carolina who is interested in the state's progress to visit this exhibit sometime during the year.

With the exception of the loss of Dr. Norton, there have been few staff changes of importance. Dr. R. L. Robinson who came with the Industrial Hygiene Division as a field worker in April, resigned and returned to his home to engage in private practice on the first of August. Mr. C. D. King, Jr., an Industrial Hygiene man, came with the Board in the Industrial Hygiene Division on June 15 as an assistant to Mr. M. F. Trice. Dr. G. M. Leiby returned at the completion of his course in Johns Hopkins University and assumed his duties as field director of the syphilis control program. Dr. Fellows still remains with the Board and continues to render valuable assistance.

The officials and employees of the Department of Preventive Medicine were saddened this year on account of the death of two veteran nurses. Miss Katharine Livingston died on May 26 and Mrs. Margaret Sloan died on July 12. Both of these nurses had rendered valuable service in this Division for many years.

There were no expiration of terms of service of the membership of the State Board of Health this year, therefore no changes in personnel occurred.

In March 1938, the Board received a report from a committee previously appointed to study pneumonia. The committee headed by Dr. H. B. Haywood of Raleigh as chairman, Dr. W. T. Rainey and G. G. Dixon from the Board, with Doctors Fred Hanes, C. T. Smith as consultants, and Dr. C. V. Reynolds, ex-officio, made a full report. Arrangements were made through Dr. Hanes of the Duke Medical faculty for a special course to train local technicians which was largely attended.

An important piece of field work which met with widespread appreciation throughout the State this year was a series of 34 health institutes for teachers and principals of schools in as many places representing the State. Eight thousand teachers and principals attended these Institutes which were of a practical character. The Institutes were conducted under the joint auspices of the State Board of Health, State Department of Public Instruction and the Extension Service of the North Carolina State College. The officials who executed this piece of work were Dr. Roy Norton and Mrs. H. P. Guffy, nurse, of the State Board of Health, Miss Mary Thomas, nutrition specialist of the State College Extension Service, Mr. H. A. Perry and Mr. Charles E. Spen-

cer of the State Department of Public Instruction. This work was under the general supervision of Doctors Reynolds and Cooper of the State Board of Health, and it was carried out under the health education division of the Board, and Dr. J. Henry Highsmith of the State Department of Public Instruction.

The total expenditures for the State Board of Health for the fiscal year ending June 30, 1938, were \$1,041,895.98. Of this amount \$353,953.55 was appropriated by the Legislature, \$226,297.57 by the United States Children's Bureau, \$337,914.39 by the United States Public Health Service, and \$123,730.47 from fees received by the Laboratory in water taxes, etc., and other miscellaneous items.

Dr. Roy Norton, who for nearly two years had been assistant director in the Division of Preventive Medicine, resigned to accept the position of Professor of Public Health Administration in the School of Public Health in the University of North Carolina. Dr. Norton's resignation was effective September 1. A successor to Dr. Norton was not appointed during the remainder of the year.

Beginning with July 1 of this year, the following counties set up whole time health department organizations: Alamance, Alleghany, Ashe, Davie, Polk and Union. On September 1, Catawba, and September 16, Cleveland. On November 1, Currituck became a member of the district health department with Dare and other counties.

1939. In the Division of Sanitary Engineering, John D. Faulkner returned to the department to resume his work after taking a year of public health engineering training at the University of Michigan.

Mr. James P. Stowe of Charlotte, for many years a member of the State Board of Health, died on February 12. The Governor later appointed Mr. C. C. Fordham, Jr., a Greensboro druggist who promptly qualified as a member of the Board. During the year there were no other changes in the personnel of the Board. All members whose term expired were either reelected by the State Medical Society or reappointed by the Governor.

On August 7, Dr. John S. Anderson was appointed as a member of the staff as consultant in public health administration in the Division of County Health Work. Dr. Anderson had previously served as county health officer in Craven and Cabarrus counties.

On December 31, Miss Josephine Daniel resigned as consultant in public health nursing in the Division of County Health Work and accepted an appointment as director of public health nursing with the Oklahoma State Department of Health.

On December 15, Dr. George M. Leiby, venereal disease consultant, resigned his position with the Division of Epidemiology to accept the position of director of venereal disease control in the City of Washington, D. C.

On June 13, Dr. H. F. Easom resigned as director of the Division of Industrial Hygiene to return to the North Carolina Sanatorium as clinic physician. He was succeeded effective October 15, by Dr. T. F. Vestal, a native of Randolph County, formerly a member of the Sanatorium clinical staff.

During the year, construction work was started on the new central Laboratory on Caswell Square adjoining the administrative building of the State Board of Health. Also, Construction work was begun on the buildings on the State Laboratory farm between Raleigh and Cary.

In the Division of Preventive Medicine, Mrs. J. Henry Highsmith resigned her position as health educator, effective October 1. Mrs. Highsmith's resignation was very reluctantly accepted. Off and on Mrs. Highsmith had been connected with the State Board of Health for many years. She has rendered invaluable service in the health education work of the Board.

In the early months of the calendar year of 1939, plans were matured after two or three years' efforts, attended by frequent conferences of all concerned, by the State Health Officer and the State Superintendent of Public Instruction, for the establishment of a service through which the facilities of the State Department of Education and the State Board of Health for the execution of a unified health service in the public schools of the State might be further integrated. Inauguration of this plan was made possible by a supplementary grant of \$50,000 by the Rockefeller Foundation and the General Education Board to be spent over a five year period, commencing July 1, 1939. The official designation of this organization is the North Carolina School Health Coördinating Service. The organization as a whole consists of an Advisory Committee and a full-time operating staff. The Advisory Committee consists of five members: namely, Dr. J. Henry Highsmith, Dr. G. M. Cooper, Dr. C. F. Strosnider, Dr. R. J. Slay, and Dr. Oliver K. Cornwell. The operating staff consists of the following seven members: Dr. Walter Wilkins, Coördinator; Miss French Boyd, nutritionist; Mr. Charles E. Spencer, physical education; Miss Olive Brown, physical education; Miss MacVeigh Hutchinson, nurse; Dr. Walter Hughes, Negro physician; Mrs. Irma N. Henry, Negro health educator. In addition to these regular staff members several nurses from the Division of Preventive Medicine have been assigned to work with the organization for varying periods of time.

Dr. John F. Kendrick was lent to the state by the Rockefeller Foundation to serve temporarily as administrative

adviser to this school health coördinating unit. Preliminary plans involving the selection of trained personnel and numerous other organization preparations were undertaken during the months of July and August, 1939, and initial field operations commenced in Stanly County in September. In addition to Stanly, coöperative work was undertaken in Person, Orange, Chatham and Wayne counties during the year.

This was the first full fiscal year in which the sum of \$100,000 donated by the Zachary Smith Reynolds Foundation to aid the Board of Health in its syphilis control work was available. This initial donation of \$100,000 in cash to the State Health Officer to be used without strings attached, represents one of the largest gifts ever received by the Board of Health. It has enabled the State Board of Health to put into effect many necessary, requirements in the State-wide work of control of the spread of syphilis. This money has been used for the specific purpose for which it was allotted. It has been used to employ additional men and women who are experts in their field and for the training of other nurses and physicians to become experts in the work necessary to deal with this enormous problem. This trust fund has enabled the Board to extend its activities in almost every direction and to keep up the official work in such a manner as to make sure a long time successful program which will be necessary to reduce the prevalence of syphilis in this State to a minimum.

The total expenditures for the State Board of Health for the fiscal year ending June 30, 1939, were \$1,215,056.80. Of this amount \$364,506.25 was appropriated by the Legislature, \$232,993.80 by the United States Children's Bureau, \$311,859.00 general and \$51,829.11 venereal disease by the United States Public Health Service, \$130,290.49 by the Zachary Smith Reynolds Foundation, and \$123,578.15 from fees received by the Laboratory in water taxes, etc., and other miscellaneous items.

In this year no changes in the personnel of the State Board of Health occurred. Every member continues to serve to the full extent of his ability, giving unstintingly of his time and efforts to the constructive work of the State Board of Health.

1940. The most important item in the field of public health in this State in 1940 was the completion and dedication of the central building known as the Clarence A. Shore Laboratory of Hygiene. As stated before in this chronology, this new plant costing about \$311,000 was made possible by the selling of revenue bonds and the allocation of a PWA grant and in the acquisition of funds from various sources. The total outlay of \$311,000 represents the cost of the central plant on Caswell Square, completed and equipped, and the cost of the buildings on the Laboratory farm located six miles west of Raleigh. The Shore Memorial Building was dedicated with appropriate ceremonies on February 21, 1940. There

were addresses by Governor Clyde R. Hoey, Dr. S. D. Craig, President of the State Board of Health, Dr. Carl V. Reynolds, State Health Officer, Mr. J. W. Kellog, assistant director of the State Laboratory of Hygiene, Dr. George M. Cooper, Assistant State Health Officer, and Dr. John A. Ferrell, Associate Director of the International Health Division of the Rockefeller Foundation. Dr. John H. Hamilton, Director of the Laboratory, presided over the exercises. Greetings from neighboring and friendly organizations and institutions were brought by Dr. M. J. Rosenau, Division of Public Health of the University of North Carolina, Dr. W. C. Davison, Dean of the Medical School of Duke University, Dr. W. deB. MacNider, Dean of the Medical School of the University of North Carolina, Dr. E. S. King, Professor of Preventive Medicine of Wake Forest College, Dr. Hubert B. Haywood, President-elect of the Medical Society of North Carolina, Mr. E. C. Derby, Resident Engineering Inspector of the Public Works Administration, Dr. M. V. Zeigler, Senior Surgeon of the United States Public Health Service, Washington, and Dr. John M. Saunders, Regional Medical Consultant of the Children's Bureau, Washington. The entire issue of the April, 1940, number of the *Health Bulletin* was devoted to the description of the dedication of the Shore Memorial Building. The issue was increased from the normal sixteen pages to a thirty-two page volume.

The central Laboratory building consists of four stories and is modern in every detail. The State Laboratory of Hygiene farm consists of approximately 280 acres of which 100 acres is under cultivation, the balance in woodland. The farm has a frontage of fifteen hundred and fifty feet on the great United States national highway number one. Both the Seaboard and Southern railways also front it. The buildings on the farm consists of the farm laboratory building, horses and sheep barns and buildings for the production of smallpox vaccine and other biologic products, as well as the buildings for the housing of small animals needed in this work.

On April 1, John D. Faulkner was transferred from the Division of Sanitary Engineering to the Division of Epidemiology to have charge of rodent control work.

John Andrews who had effectively headed the milk sanitation program in the Division of Sanitary Engineering resigned to accept an important position with the United States Health Service in Washington. R. F. Hill, Jr., finished his year of specialized training in sanitary and public health engineering at the University of North Carolina and returned to his duties with the Sanitary Engineering Division.

Effective work has been carried on with the aid of the WPA and United States Public Health Service in the malaria control drainage and community sanitation. Milk sanitation was advanced with a marked increase in the number of pasteurized

zation plants. With the assistance of the aforementioned organizations and the PWA, the installation of new public water systems was brought up to a total of 52 installed during a four-year period ending June 30, 1940. Improvements, additions and extensions were made to a great many of the water and sewerage systems of the state.

In the Division of Vital Statistics, there was closer co-operation with the local health departments in an effort to be of mutual assistance in registration. Social Security benefits requiring proof of number and age dependents and necessitating the presentation of the birth and death certificates has increased the number of verifications and copies of the certificates issued by the division. There were no material changes in the division during the first half of 1940.

On March 1, 1940, Miss Amy L. Fisher succeeded to the vacancy left by Miss Daniel as a consultant nurse in the Division of County Health Work. Miss Fisher had been supervising nurse in the Durham Health Department. Gates County joined the district to be composed of Hertford and Gates, the work to become effective July 1, 1940.

In the Division of Industrial Hygiene, there was issued a profusely illustrated one hundred page printed report presenting the results of a study of effects of exposure to dust in the mining and milling of pyrophyllite, the field work for which was done during the previous biennium. One of the outstanding achievements of this division was the design of seven industrial exhaust ventilation systems for the control of dust. Three of these had already been completed by June 30 and the installation of the others was already underway.

With the closure of the public schools for the summer holidays, preparations were made for health courses to be given thirty white and thirty colored teachers at the University of North Carolina and the North Carolina College for Negroes at Chapel Hill and Durham respectively. These courses covered a six weeks period ending approximately July 20, 1940, and were made possible by a grant of \$4,700 by the General Education Board. While it would be premature to attempt an appraisal of what was accomplished by this organization during its first year of existence, it may be stated that educational and health personnel alike co-operated generously, that certain procedures were found to be satisfactory while practical considerations necessitated the modification of others, and that progress was made toward the maturation of a generally accepted school health program.

On January 1, 1940, Dr. Ralph J. Sykes assumed the duties of venereal disease consultant in the Department of Epidemiology. Dr. Sykes had previously served for several years as county health officer first in Surry and later in Halifax. Dr. Frank S. Fellows, Surgeon with the United States Public

Health Service who has been assigned to North Carolina for several years, continued to render valuable service in the capacity of venereal disease consultant.

The main accomplishment in the Division of Epidemiology was the great expansion of venereal disease control program. This was largely as a result of financial aid from the Zachary Smith Reynolds Foundation and the United States Public Health Service. In June, 1936, there were 120 clinics in operation. They treated 13,304 patients. In June, 1940, as a result of the aforementioned financial aid, the number of clinics have been increased to 255 in which 27,814 patients received treatment in a single month. The system of mechanical tabulation set up in a central tabulating unit under the direction of this division reached its full stride in the early months of 1940. A complete progress record is kept on every patient receiving treatment. The central tabulating unit renders valuable assistance to other divisions of the State Board of Health.

The Manual of Minimum Standards for conducting venereal disease clinics prepared by Drs. Fellows and Leiby still continues to be very helpful to physicians and nurses and others concerned with the conduct of venereal disease clinics. Financial aid was given through this department to all organized counties in the state. Fifty-one clinics were supplied with combination darkfield and general purpose microscopes and sixteen of the largest clinics were given fluoroscopes.

On January 1, Dr. Emmett S. Lupton was employed as assistant director in the Division of Preventive Medicine. Dr. Lupton had just completed his internship in pediatrics at the Duke Hospital. In the Division of Preventive Medicine, organized maternal and child health clinics were being operated in 55 counties. An increasing number of infants and expectant mothers among the poor classes were in attendance on these monthly clinics. A total of approximately 250 physicians were cooperating on a part-time basis at the close of the fiscal year, June 30.

The circulation of the *Health Bulletin* increased from about 52,000 to 60,000 monthly copies during the year.

In the Division of Oral Hygiene, there were no material changes except some expansion and expenditures of additional funds in the work of that division, necessitating the employment of an additional number of dentists.

At the beginning of the calendar year 1940, the question of adoption by the State Board of Health of a so-called merit system as required by some sections of the Federal Government at Washington loomed as an important item for consideration during the year. Early in January it was required by the Children's Bureau that standards to form the basis of a merit system should be submitted before the allocation

of Children's Bureau funds for the winter quarter would be forthcoming. By the middle of January, therefore, Doctors G. M. Cooper and Emmett S. Lupton, working in consultation with Dr. Carl V. Reynolds, State Health Officer, worked out and submitted a seventeen-page typewritten document setting up standards acceptable to the State Board of Health. These standards with a few minor modifications were immediately accepted by the Children's Bureau. Later in the winter the Regional Medical Consultant of the United States Children's Bureau spent several days in Raleigh discussing with Dr. Reynolds and the representatives of the Children's Bureau in the State Board of Health plans for further development of the merit system, the next requirement being setting up of a merit system council with a supervisor and submission of classification plans for all State Board of Health workers. At this time the State Health Officer appointed the Director of the Division of County Health Work to be the responsible official to work out further plans. At a meeting of the State Board of Health on November 29, 1940, that body considered a new draft of what it termed "A Rule for a Merit System of Personnel Administration in North Carolina." Much discussion on the subject was indulged in by various members of the Board at this meeting. A suggestion of Dr. H. G. Baity, a member of the Board, at this time deserves particular emphasis. Dr. Baity made the suggestion that a general statement be placed somewhere in the compensation plan to the effect that the "duties outlined for each position classified were not to be considered as comprising all the duties that might be required of the position and that such other duties as might be required by the State Health Officer or the Division Director would be included."

Later in the year 1940, the war clouds over the world were gathering with such an ominous outlook that the United States Army, Navy and Public Health authorities were busy laying the groundwork for a mighty army and navy to defend the country. One of the first considerations by the United States Public Health Service and the North Carolina State Board of Health in the fall of this year was an effort to detect the presence of syphilis in as large a section of the population as possible, especially those liable for military service. On October 16, 1940, which was registration day under the Selective Service Draft, the North Carolina State Board of Health utilizing the services available in its 265 venereal disease clinics then established in the State offered to take blood samples from all registrants on a voluntary basis. Consequently, 132,671 blood specimens were taken and examined. This accomplishment was one of the most widespread efforts ever made in the State up to that time

to locate by serological examination the presence and distribution of syphilis in North Carolina.

The Federal Government proposed to set up what they call a "Firing Area" in Pender and Onslow counties. It became necessary for the State Board of Health to insist on the organization first of a whole time health department in each of these two counties, neither one having ever had such department before. This was arranged on a joint financial basis between the counties and the State and Federal Government, and a district health department was set up.

The total expenditures for the State Board of Health for the fiscal year ending June 30, 1940, were \$1,380,174.90. Of this amount \$370,057.67 was appropriated by the Legislature, \$162,813.81 by the Zachary Smith Reynolds Foundation for syphilis control work, \$229,872.28 by the United States Children's Bureau, \$318,148.38 general and \$175,557.72 venereal disease by the United States Public Health Service, and \$123,465.04 from fees received by the Laboratory in water taxes, etc., and other miscellaneous items.

1941. The imminence of war all through the early part of that year overshadowed all other questions. The establishment of Camp Davis in Pender and Onslow counties, the Marine Base there and later in Craven County and the expansion of the facilities of Fort Bragg in Cumberland County, together with the enormous shipbuilding activities underway at Wilmington gave a wartime color to most all health work in the State during 1941.

The Legislature reduced somewhat its appropriation to the State Board of Health for public health work but this was offset by increased appropriation by the United States Public Health Service and the Children's Bureau at Washington. The Legislature also near the close of the session enacted a State Merit System Law to apply conjointly with the Federal requirements to those departments participating in the Federal organization.

At the several meetings of the Board this year the question of better and more widespread utilization of the Laboratory facilities were discussed and provision was authorized for further distribution of various biologicals. The Legislature had been asked for the sum of \$7,000 to provide for free diphtheria toxoid to be dispensed through the Laboratory for the use of all the physicians in the State just as typhoid vaccine and smallpox vaccine have been distributed for many years. The Legislature refused the appropriation and therefore, the only free toxoid that has been provided has been from the Maternal and Child Health Service of the Division of Preventive Medicine from funds allocated by the U. S. Children's Bureau. Five thousand dollars were spent for this purpose.

At practically every meeting of the Board this year there was much discussion on the question of the Merit System. In October of this year the first Merit System examinations were held for certain types of classified service. This included stenographic and clerical positions. Some confusion prevailed throughout the year as to how far the requirements should be extended to include local employees of the various county and city boards participating in State and Federal funds.

Some changes were made in milk distribution regulations and the regulations governing the control of venereal diseases.

The following motion was adopted by the State Board of Health at a meeting in Raleigh on September 12, 1941: "That the Board endorse the policy of its Secretary, Dr. Carl V. Reynolds, in his efforts to suppress venereal diseases and prostitution not only around the military areas in North Carolina but also among its civilian population. V. D. Control in North Carolina is a public health problem and it is a fixed policy of the Board to give all of its efforts to the improvement of this situation. We feel that progress is being made and we assure Dr. Reynolds of our full coöperation in the continuance of this program."

On July 1, 1941, Mr. D. S. Abell who had been an assistant engineer in the Sanitary Engineering Department, resigned to become chief sanitary engineer of the Alabama State Board of Health. There were few other changes in personnel during the year except the resignation of Dr. Emmett S. Lupton as Assistant Director of the Division of Preventive Medicine. Dr. Lupton resigned after twenty-one months' faithful service to the Board for the purpose of engaging in private practice at Graham, North Carolina. Dr. Lupton was a valuable worker and contributed very much toward the success of the work in his division during his short term of office.

The Legislature also adopted during the year two laws regarding the registration of delayed birth certificates and a third law legitimatizing births of illegitimate babies born out of wedlock, provided the parents were subsequently married. The Vital Statistics Department all through this year was overwhelmed with requests for birth certificates on account of the widespread employment demands and military service, all of which require birth certification in order to establish citizenship.

An important expansion in the work of the State Board of Health was the erection of an Oral Hygiene Building on Caswell Square, adjacent to the administration building of the State Board of Health. The new building was designated as the Oral Hygiene Building and is entirely devoted to the work of that division. Ground was broken for this building on January 1, 1941, and on the last Thursday in November the division moved into its new home. WPA assisted in the erection of this building.

Miss Carolyn Mercer, educational consultant on the staff of the Oral Hygiene Division prepared for distribution in the schools a handbook for the use of elementary teachers of our State. This handbook is entitled "Teaching Mouth Health in North Carolina." It has been well received, and as a recognition of this contribution, the North Carolina Dental Society at its meeting this year conferred the honor of making her an honorary member of the North Carolina Dental Society, the first woman layman to receive such an honor in the State Society.

In the Division of Industrial Hygiene, the year 1941 witnessed the completion of an examination of some two thousand men employed to drive nine miles of tunnel in connection with the construction of two hydro-electric power plants in Western North Carolina.

A profound influence on all public health activity in North Carolina at the close of 1941 was the treacherous attack by Japan on the United States by a stab in the back without declaration of war at Pearl Harbor on December 7. This yellow act of treachery naturally has had a profound influence on all public health activities in the State from the first moment that the people received information of this treachery.

At the annual conjoint session of the State Board of Health and the North Carolina Medical Society held in Pinehurst, the terms of office of Doctors S. D. Craig and W. T. Rainey having expired, both were unanimously reelected for an additional term of four years.

The total expenditures for the State Board of Health for the fiscal year ending June 30, 1941, were \$1,596,038.31. Of this amount \$390,916.50 was appropriated by the Legislature, \$19,000 of which was a special appropriation to the Laboratory, \$173,398.34 by the Zachary Smith Reynolds Foundation for syphilis control work, \$387,912.36 general and \$200,749.20 V. D. by the United States Public Health Service, \$185,356.56 Maternal and Child Health and \$111,509.78 Crippled Children by the United States Children's Bureau, and \$146,195.27 miscellaneous items for Laboratory fees, etc.

1942. Early this year arrangements were made through a meeting called by the Governor, of the county school superintendents and other interested persons to have a physical examination made of all the high school students particularly in the last two grades of the high schools. After several committee meetings the officials of the State Medical Society, the State Dental Society, the State Department of Public Instruction, the school and health officials of the county and with the representatives of the State Board of Health, this plan was carried out. A report of the results of this work will be found under the title, "The School Health Coördinating Unit," published elsewhere in this volume.

Dr. D. F. Milam, who had been carrying on with his assistants some interesting surveys in the community around Bynum in Chatham County, completed that service and early this year moved on to Wayne County for more intensive activities in the field of nutrition there. Dr. Milam, who is a loan to the State Board of Health by the Rockefeller Foundation, has a personnel of about five people and is conducting a splendid program in nutrition. His office is located at Duke University, his home is in Chapel Hill, and he is therefore in close contact with both institutions.

In this connection, one of the most significant moves made in the State Laboratory of Hygiene has been the setting up of a nutrition department under the direction of Dr. Bailey Webb. The work in nutrition has received tremendous impetus on account of the food situation throughout the world as a result of the global war now enveloping the earth.

Early in January this year, Dr. John F. Kendrick who was a loan to the State Board of Health also from the Rockefeller Foundation retired from his connection heretofore with the School Health Coördinating Unit and Dr. Walter Wilkins, the Coördinator, assumed entire responsibility for the School Health Coördinating program. This was consummated at a meeting of the Advisory Committee of that service held in the office of the State Superintendent of Public Instruction on January 21, 1942. Dr. Kendrick was allowed to continue his service in North Carolina as a consultant in the State Board of Health in order to complete the nutritional organization throughout the State. Dr. Reynolds was appointed Chairman of the State Nutrition Council and Dr. Kendrick is his official assistant. Dr. Kendrick's work is largely in the promotion of organization of this work throughout the State on a county basis.

On January 1, 1942, Dr. G. M. Cooper was retired from the editorship of the *State Health Bulletin* and Dr. John H. Hamilton assumed the duties of acting editor. Dr. Cooper completed his service of 19 years' editorship of this publication and at his insistent request his resignation for this service was accepted. Very complimentary editorials appeared in the *Southern Medicine and Surgery* and in the *North Carolina Medical Journal* concerning his work over the years as director of health education for the State Board of Health and his work as editor of the *Health Bulletin*.

At a meeting of the State Health Coördinating Service in Superintendent Erwin's office on May 8 of this year, the resignation of Dr. Walter Wilkins as Coördinator in the service was accepted to become effective June 1. A committee composed of Dr. G. M. Cooper, Chairman, Mr. Charles E. Spencer, and Dr. Oliver K. Cornwell were appointed to take temporary charge of the work of the division and to have authority for the conduct of the summer health con-

ferences to be held in four of the State's institutions. This committee was able to set up all the machinery for each one of the conferences and to conclude a most satisfactory summer's health course in the Woman's College of the University of North Carolina at Greensboro, Bennett College, a Negro institution at the same place, North Carolina College for Negroes at Durham, and the University of North Carolina at Chapel Hill. All of these conferences comprising a six weeks' course in each place were concluded with highly satisfactory results under the direction of the committee and with Mr. Spencer being in charge of the detailed execution of the plans, assisted in the Negro institutions by Dr. Walter J. Hughes, a colored physician on the staff of the State Board of Health.

In May of this year, the maternity and infancy clinics set up under the Division of Preventive Medicine reached a total of 308 established in 74 counties of the State. Some two hundred private physicians were participating at intervals in the program of examination for indigent women and well babies received in these clinics. Before July 1, however, the department was feeling seriously the inroads made by so many coöperating physicians both in the division of Preventive Medicine and in that Epidemiology, who were assuming duties in the military forces of the country. The postgraduate course in Duke Medical School conducted by the Division of Preventive Medicine had to be discontinued by mid-summer on account of the shortage of physicians in private practice due to such depletion of the service, as mentioned before.

In the Division of Industrial Hygiene, the year 1942 was marked by the receipt of a substantial amount of lease lend equipment from the U. S. Public Health Service. A full-time well qualified chemist was also provided on the same basis, and from the same source.

Up to July 1 at the close of the period covered by this chronology, county health work had been extended to include 84 counties, Pasquotank County being the last to come into the service.

On May 31, Dr. Ralph J. Sykes who had been an assistant in the department of Epidemiology was commissioned a reserve officer in the Army with the rank of Captain, and resigned from the State Board of Health. His place had not been filled up to July 1.

On May 1, Dr. Merl J. Carson of Wilmington, a qualified pediatrician, joined the service of the Division of Preventive Medicine as a consultant pediatrician. On June 1, Dr. Robert B. Lawson completed his assignment of two years with the State Board of Health in the conduct of the postgraduate courses at Duke and as consultant in pediatrics to assume his duties by prearrangement as associate professor of pediatrics in the Bowman Gray Medical School of Wake Forest College

at Winston-Salem. Dr. George K. Anderson of Rochester, New York, a qualified pediatrician, was secured to take the place of Dr. Lawson.

On June 9, at the annual commencement of the University of North Carolina, the honorary degree of Doctor of Laws was conferred upon Dr. George M. Cooper, Director of the Division of Preventive Medicine, who had completed at that time twenty-seven years' consecutive service as a member of the executive staff of the State Board of Health. The first such honor conferred upon a State health official was a similar degree conferred by the University upon Dr. Thomas F. Wood in 1888, four years before Dr. Wood's death and after he had served for several years as the first State Health Officer. The second was a similar degree conferred upon Dr. Richard H. Lewis by the University in 1912, three years after he had terminated his seventeen years' service as State Health Officer. A third degree of Doctor of Science was conferred by the University upon Dr. Clarence A. Shore in 1929 after he had concluded twenty-one years' service as Director of the State Laboratory of Hygiene. By the time of his retirement, or soon after, as State Health Officer in 1925, Wake Forest College and Duke University each conferred an honorary degree upon Dr. W. S. Rankin. About a year later, Davidson College conferred a similar degree.

The total expenditures for the State Board of Health for the year ending June 30, 1942, were \$1,791,878.11. Of this amount \$370,150.59 was appropriated by the Legislature, \$65,403.89 of which was for the State Laboratory, \$178,405.32 by the Zachary Smith Reynolds Fund for syphilis control work, \$418,515.61 general and \$317,280.68 venereal disease fund by the U. S. Public Health Service, \$227,703.77 maternal and child health and \$120,121.24 crippled children's funds by the U. S. Children's Bureau, and miscellaneous receipts consisting of bedding, dental and Laboratory fees totaling \$159,700.90.

There were some staff changes during the latter part of the year 1942. Following the resignation of Dr. Walter Wilkins, who resigned from his position as head of the School Health Coördinating Service, Dr. W. P. Jacocks, a native of North Carolina who had served as a staff officer of the International Health Board mostly in foreign service for the past thirty years, and who was retired from that service, was induced to accept the place vacated by Dr. Wilkins. Dr. Jacocks assumed direction of the department on October 5 of this year. Dr. Jacocks immediately proceeded to reorganize the School Health Coördinating Service and later on in the year a complete staff was secured, and by the late Autumn work was fully underway in that department in a number of counties.

In July of this year a joint State-Federal project for the production and evaluation of venereal disease educational materials was sponsored by the U. S. Public Health Service and the Zachary Smith Reynolds Foundation as an adventure in this specialized field of venereal disease education. The institute was set up to originate educational materials to demonstrate them and to evaluate their impact under the direction of Mr. Capus M. Waynick. Mr. Waynick is an experienced newspaper editor and a former high official of the State Highway Commission.

During this year the Division of Public Health Nursing in the School of Public Health at the University of North Carolina got underway with a full class who received degrees at the June commencement. The Public Health Nursing Division under the direction of Miss Ruth W. Hay as Professor of Public Health Nursing and with the assistance of Miss Margaret Blee as Assistant Professor and Assistant Director completed a most successful scholastic year. Thirty-eight nurses were enrolled in the year's course.

In the Autumn of this year the employees of the State Board of Health organized and established what is officially known as the North Carolina Academy of Public Health at the State Board of Health. All employees of the State Board of Health are members of this Academy and are required to attend monthly meetings. The objective is to review the entire program of the various divisions in order that each employee may have a general knowledge of the coordinated whole. This organization endeavors to act as a continuous refresher course and is designed to promote closer cooperation and social interests through the occasional gatherings for that purpose. The usual attendance is about 125. The officials of this organization elected at its organizational meeting were Dr. George M. Cooper, President, Dr. E. A. Branch, Vice President, and Mrs. Anne B. Edwards, Secretary and Treasurer.

The total expenditures for the State Board of Health for the year ending June 30, 1942, were \$1,791,878.11. Of this amount \$370,150.59 was appropriated by the Legislature, \$65,403.89 of which was for the State Laboratory, \$178,405.32 by the Zachary Smith Reynolds Fund for syphilis control work, \$418,515.61 general and \$317,280.68 venereal disease fund by the U. S. Public Health Service, \$227,703.77 maternal and child health and \$120,121.24 crippled children's funds by the U. S. Children's Bureau, and miscellaneous receipts consisting of bedding, dental and Laboratory fees totaling \$159,700.90.

1943. The chronology for this year and the year following will be greatly condensed. The reason for this is lack of time for proper preparation on the part of the editors of the chronology who at the time of the preparation of this manuscript

are overwhelmed in duties involved in the administration of the increased work necessitated by war demands. Another reason is the scarcity of print paper requiring brevity. It is understood that when peace is restored for the world and the department is able to resume its normal functions that the very unusual amount of activity carried on by a large number of persons in this period will be carefully and accurately set forth in the next volume of these reports which should be issued two years from now.

During this year, the work of the Board of Health was expanded in every direction. During 1943, the terms of Drs. G. G. Dixon and John LaBruce Ward as members of the State Board of Health expired. They were reelected by the State Medical Society to succeed themselves, each to serve an additional four year term which will expire in 1947. Dr. H. Lee Large, whose term expired in 1943, was reappointed by the Governor for a term of four years to expire in 1947. Dr. H. G. Baity, whose term as a member of the Board expired in 1943, was not reappointed by the Governor because of the fact that he had been given a leave of absence for a period of three years from his duties as Professor of Sanitary Engineering at the University of North Carolina for some important work with the U. S. Government to be done in South America. Dr. Baity's absence was expected to cover at least three years. The Governor appointed to serve in his place Dr. J. O. Nolan, a practicing physician of Kanapolis, his term to expire in 1947. In 1943, Mr. C. C. Fordham, Jr., of Greensboro, whose term was to expire in 1945, resigned to accept a commission in the armed service. The Governor appointed Mr. Larry I. Moore, Jr., and member of the Legislature from Wilson, North Carolina, to succeed Mr. Fordham, his term to expire in 1945.

During this year, arrangements were made for the establishment of a chair in the School of Public Health at the State University to teach a health education training course. Dr. Lucy S. Morgan was engaged as instructor in this field. Dr. Morgan was assigned to the State of North Carolina by the U. S. Public Health Service to inaugurate this work. Through the office of Dr. Mayhew Derryberry, Chief of Field Activities in Health Education of the U. S. Public Health Service, twenty fellowships were secured to provide for courses in this field of health education from the W. K. Kellogg Foundation of Michigan. Students entering on these fellowships come from all parts of the United States. These fellowships pay the recipients tuition and allow them a stipend for living expenses.

During this year, Mr. Warren H. Booker, who had been director of the Division of Sanitary Engineering since 1931, was placed on the retired list and Mr. J. M. Jarrett was appointed as his successor.

In the department of Central Administration, Miss Sara Wilkerson was employed as Personnel Officer and in charge of the enforcement of the Merit System regulations in so far as employment of workers in the State Board of Health is concerned. After several years' efforts and pressure from the Federal Government, a system of merit examinations was set up. All employees of the State Board of Health beginning with this year, except strictly professional service which has had to be deferred until the end of the present war, are selected. Any new places or any replacements must be filled from the list provided by the Merit System Supervisor. This covers all of the department personnel except, as just stated, the professional personnel.

In November of this year, the administrative supervisor of the crippled children's department in the Division of Preventive Medicine resigned after a little more than seven years' service. Following his resignation, there were some personnel changes in that department resulting from resignations. The department was practically reorganized but the work is conducted under the medical direction of the Division of Preventive Medicine.

Following some experimental work began in September 1942, with funds allotted by the U. S. Children's Bureau, one of the largest and most difficult programs ever undertaken by the State Board of Health was expanded early in this year. Reference is made to what is termed the EMIC program, the Emergency Maternity and Infant Care program, launched by the Federal Government for the purpose of providing free medical, nursing and hospital care in maternity cases for the wives of the men in the four lower pay grades of all the armed services and to provide for such care for the infants under one year of age of the same pay grades of the same classes of service men. This work has been a responsibility of the Division of Preventive Medicine in the department of maternal and child health services. It has necessitated meticulous contracts between the Board of Health, the coöperating hospitals who accept these patients, the physicians who attend them and any special nurses whose services are needed. Aid has been provided for women in every county of North Carolina. The work has been particularly heavy in this State because of the fact that a number of camps training soldiers for overseas duty were located here. Many of these young wives came to the vicinity of the camps to be near their husbands. Some of these lived in trailers, in crowded boarding houses and other undesirable places. It has been the duty of this department to secure the services of a physician who will accept the fees allowed by the government for complete maternity service, then to secure the contracts from hospitals who would accept these patients on the government terms which provide first class ward care. It has involved correspondence entailing thousands upon

thousands of individual letters and much complicated financial and clerical work. As the year closed, this problem was growing bigger and bigger. More will be said about it and some of the results which have been accomplished will be mentioned in the chronology for 1944.

A division of consultant nurses was enlarged and expanded by which the State was divided into districts and the administration of public health nursing from the State level was carried on by these consultant nurses under the general supervision of the local health administration. This service does not include the highly specialized service necessary in the department of crippled children. The nurses in that department, two at present, carry on the highly specialized nursing required in the conduct of the clinics for the examination and later treatment of crippled children.

One of the new installations in this year was the establishment of a multilith department under a competent operator. This has relieved to some extent the demands on our printing as well as mimeographing.

The total expenditures for the State Board of Health for the fiscal year ending June 30, 1943, were \$1,880,230.62. Of this amount \$406,993.29 was appropriated by the Legislature, \$67,432.62 of which was for the State Laboratory, \$178,883.10 by the Zachary Smith Reynolds Fund for syphilis control work, \$289,981.30 general and \$463,125.09 general disease fund by the U. S. Public Health Service, \$184,807.17 maternal and child health and \$123,538.79 crippled children's funds by the U. S. Children's Bureau, and miscellaneous receipts consisting of bedding, dental and Laboratory fees totaling \$132,901.88.

Two Rapid Treatment Centers for the cure of venereal diseases were opened in North Carolina during the year. One is located in Charlotte, the other in Durham. The Charlotte Center, opened August 13, is financed out of Lanham Act funds, provided by Congress, and certain funds at the disposal of the State Board of Health, and is operated as a State enterprise, though staffed largely by United States Public Health Service officers. The Durham Center, also supported by Lanham Act funds, is operated by the United States Public Health Service, in coöperation with the State Board of Health. It was opened November 16.

1944. The summary of activities which may be recorded this year is simply a statement of the continuation of activities in every department of the State Board of Health which was underway in 1943. No new work has been established during the first six months period of 1944 covered by this report, except the enlargement and continuation of work heretofore carried on. It should be noted here that one of the employees, Mr. James Cooper of the Laboratory of Hygiene, who was on leave of absence to serve in the U. S. Air Corps, was killed over

Rumania while performing his duties as a member of the crew of one of the big bombers attacking the Ploesti oil fields. Another young engineer, Mr. Charles H. King, who was for several years employed in the Industrial Hygiene Division, died of meningitis while serving in the Army in Italy. Mr. King had left the service of the Board a few months before going into the armed services. He left the Board to accept service as an engineer in another State Health Department. These young men were valued employees of the State Board of Health and so far as is known were the only employees so far killed in the armed service.

Early this year, the State Board of Health inaugurated a rather drastic change in the local administration of health work. Heretofore this work was grouped under the Division of County Health Work with a single director in charge. The department was reorganized on a basis of divisional representation. Three districts were set up, the eastern district in charge of Dr. Joseph C. Knox, the middle district in charge of Dr. R. E. Fox, and the western district in charge of Dr. J. Roy Hege. The purpose is to have more direct representation between the representatives of the State Board of Health and the local health authorities and to expedite the solution of the problems arising on the basis of administration. This arrangement was particularly deemed necessary on account of the problems related to the enforcement of venereal disease control throughout the entire State, as well as the many financial problems arising continually.

Dr. J. C. Knox resigned and left the service of the State Board of Health on June 30 for the purpose of entering private practice as a pediatrician in the City of Wilmington. Dr. Knox had been with the Board since he completed his postgraduate work in public health at Harvard University in 1931 and 1932. He was one of the most popular officials of the State Board of Health organization, and his departure was greatly regretted by everybody connected with the organization.

During this biennium, Dr. Carl V. Reynolds, State Health Officer, completed his term of office as President of the State and Territorial Health Authorities of North America. Dr. Reynolds served this term during the most hectic period of the preparation for war work when a great many public health measures were adopted and put into effect.

In the Division of Preventive Medicine, the administration of the Emergency Maternity and Infant Care Program continued to absorb most of the energies and resources of that department. Authorizations for medical care and hospitalization of maternity cases continued at between thirteen and fourteen hundred women a month as the biennium closed. Up to the end of the year, nearly one-half million dollars have been paid out for the completion of the care for more than five

thousand women and several hundred infants of eligible service men. It is now clear that had Congress not made provision for this program and if the different States had not arranged for its prompt administration, literally thousands of women throughout the country would have been unable to procure medical or hospital care during confinement. The law has been impartially administered in this State. The wives and babies of service men of the four lower pay grades of any of the armed services who wanted to avail themselves of this aid have had it provided, regardless of social or financial standing. Funds to carry on this work, as above stated were appropriated by Congress, at the beginning of the fiscal year, and the money is allotted to individual States by the U. S. Children's Bureau of Washington. Naturally, in any program involving the expenditure of as much money and requiring the coöperation of practically all the practicing physicians in the country who do general practice, including obstetrics, and with the pediatricians, as well as the hospitals and nursing profession, has resulted in the establishment of a great many rules and regulations by the Washington bureau, some of which have been inflexible and which caused some friction in the administration, but for the most part practically all the hospitals in North Carolina with two or three notable exceptions have coöperated wholeheartedly and several hundred practicing physicians have also participated in the service.

The total expenditures for the State Board of Health for the year ending June 30, 1944, were \$2,203,805.31. Of this amount \$439,213.47 was appropriated by the Legislature, \$65,240.38 of which was for the State Laboratory, \$178,188.05 by the Zachary Smith Reynolds Fund for syphilis control work, \$391,043.73 general and \$424,064.75 venereal disease fund by the U. S. Public Health Service, \$524,228.04 maternal and child health and \$124,035.65 crippled children's funds by the U. S. Children's Bureau, and miscellaneous receipts consisting of bedding, dental and Laboratory fees totaling \$123,031.62.

A detailed account of the organization work of each one of the divisions covering the activities of this biennium will be found in the pages to follow.

REPORT OF THE SECRETARY-TREASURER AND STATE HEALTH OFFICER

July 1, 1942 - June 30, 1944

By CARL V. REYNOLDS, M.D.

*Excerpts of the activities of the State Board
of Health as recorded in the Minutes:*

The first regular quarterly meeting of the North Carolina State Board of Health for the biennium beginning July 1, 1942-June 30, 1944, was held in the auditorium of the State Laboratory of Hygiene on September 9, 1942.

Secretary Reynolds reported to the Board the interest taken in our venereal disease program by Governor J. Melville Broughton, Judge W. H. S. Burgwyn and Judge R. Hunt Parker, and asked that if the Board saw fit, he would like to have permission to write a letter of appreciation for their stand and support given to the Board of Health. A motion was made by Doctor Rainey, seconded by Doctor Johnson, that Secretary Reynolds be authorized to write a letter to the Governor, Judge Burgwyn and Judge Parker, expressing the Board's appreciation for their support in the venereal disease program conducted by the State Board of Health. Motion carried.

The Secretary read a letter from Mr. W. Ernest Thompson, Secretary of the North Carolina Funeral Directors and Embalmers Association, Burlington, North Carolina, stating that at the Convention of their Association held in May, 1942, Mr. W. K. Sturdivant, North Wilkesboro, North Carolina, had been recommended to be appointed by the State Board of Health as a member of the State Board of Embalming for a term of five years—the appointee to succeed Mr. E. E. Dunn of Asheville, North Carolina. Motion was made by Doctor Dixon that the Board elect Mr. Sturdivant, and for the Secretary to so inform Mr. Thompson. Motion seconded by Doctor Large, and carried unanimously. Accordingly, the Secretary notified Mr. Thompson by letter.

Secretary Reynolds gave a brief progress report on the new educational project for control of venereal diseases which was established as of June 25, 1942. This new agency is set up with a total budget of \$64,800 annually. Of this amount the U. S. Public Health Service contributes directly \$31,000, and the balance is made up of funds supplied by the Foundation and the State Board. The agency will have a full-time Director and has established headquarters at Raleigh. The staff will occupy the old Armory Building on Caswell Square when improvements on the building are completed. The project functions directly under the State Board of Health and the U. S. Public Health Service. The duties of the agency will be to create educational materials and to originate educational measures for an intensified drive

against venereal diseases, to promote the distribution of new and old material, and to study the effect of both old and new material and measures on case-finding and case-holding, as well as on prevention of the spread of the diseases. Mr. Capus Waynick, formerly editor of the High Point *Enterprise*, High Point, North Carolina, is Director; Assistant Director Mr. Fred J. Cohn. When the project is set up fully, the entire organization probably will number about fourteen persons, consisting of artists, writers, stenographer-clerks, etc.

Doctor Reynolds gave a report of the meeting of the Executive Committee of the Association of State and Territorial Health Officers and the Executive Committee of the Conference of State and provincial Health Authorities of North America, held in Indianapolis, Indiana, July 25, 1942, regarding the status of the Vital Statistics Bill and of the personnel problem facing State Health Authorities. He also read a copy of a letter sent to Governor Paul V. McNutt relative to the loss of specially trained full-time public health personnel; also the recommendations made by the Advisory Committee on Public Health to the Directing Board, Procurement and Assignment Service, regarding criteria for determination of essentiality of public health physicians, dentists, and veterinarians.

A special meeting of the State Board of Health was called on November 14, 1942.

Secretary Reynolds presented the necessity and purpose of the called meeting which was due to the Army milk shortage and a letter received from Surgeon General Parran; to a conference held with the Milk Committee of the State Grange held November 4; with a committee representing the plants; a conference with Colonel Trout and Colonel Bretz, Medical Officers in charge of Camp Butner; and a meeting with members of the Grange regarding the Army Milk shortage.

Secretary Reynolds called on Mr. J. M. Jarrett, Engineer from the Office of Milk Sanitation. Mr. Jarrett presented, in detail, the emergency milk shortage in critical war areas; the suggestions outlined by the U. S. Public Health Service, the Army, and other Federal agencies, and also suggestions for a temporary period, the discretion of using a limited amount of Grade B milk for pasteurization, the Grade B milk, after pasteurization, to bear the label "Grade A Pasteurized Milk." He went further into detail relative to Grade A pasteurized milk, or Grade B raw milk which has been pasteurized, cooled, and bottled in a milk plant conforming with items of sanitation and the average bacterial plate count, defining each grade, and giving the interpretations to be used regarding the inspection of farms producing emergency Grade B milk for pasteurization, etc.

There was considerable discussion on the part of all members present. Dr. H. Lee Large made a motion that the Board adhere to the present standards and to reject the request of the Army. Motion seconded by Dr. John LaBruce Ward, and carried unanimously.

Upon further discussion of the milk shortage in Army Camps and the Board's opposition to the lowering of the milk standards, yet their willingness and desire to coöperate and give the best grade or

type of milk possible but labeling same "pasteurized" or "supervised," Dr. H. G. Baity made the following motion: "That the rules embody the following principles:

- "1. The sanitary condition of the raw milk entering into this product be as stated by Mr. Jarrett. (Suggestions and recommendations attached.)
- "2. That the pasteurizing plants be authorized to handle and process this milk for Army consumption in addition to such grades as are now being sold.
- "3. Amount of such milk being processed be that covered by contracts with the Army.
- "4. Such milk be sold only to the Army.
- "5. That such pasteurized milk bear the label 'Selected pasteurized Milk'."

The above motion was seconded by Dr. H. Lee Large, and carried unanimously.

There was a second special called emergency meeting of the Board of Health held on November 25, 1942. Secretary Reynolds stated that the meeting was called at the request of the members of the Dairy Industry of North Carolina to discuss, with the State Board of Health, the emergency milk shortage in the war areas in North Carolina.

Mr. Henry C. Liles, Manager, Pet Dairy Products Company, Greensboro, was introduced and given the floor. Mr. Liles reviewed, briefly, the events that led up the crisis—stating that "North Carolina never had been one of our leading states from a production standpoint. Remarkable strides have been made in the last few years, but it seems that we have always had a shortage of milk in certain seasons of the year. This handicap has been overcome to some degree but with the outbreak of the war in Europe and changed economic conditions and increased demands, the shortage has become critical. Efforts have been doubled, but there is no way to overcome the shortage according to our ordinance for Grade A milk. The Department of Agriculture, the Surgeon General of the U. S. Public Health Service in Washington and the Medical department of the Army had to work out some solution. We cannot get the equipment, therefore, they worked out a solution. They have provided the milk, and it has been approved by the Surgeon General. The Dairy Industry would like for the State Board of Health to give permission to receive this milk, lean more over to methods rather than equipment, and to have platform inspection and get temporary permits to receive this milk and bottle it and label it just as we are labeling it now. It is impossible to have two grades of milk in one plant—it cannot be done."

Mr. Liles presented the recommendations that the Dairy Industry wished to follow, and pointed out how the Army felt about it. He pointed out that the Dairy Industry would like to follow the Surgeon General's letter. They felt that they could operate and meet the shortage under this program. Mr. Liles said, "it will be impossible for us to handle two grades of milk for obvious reasons. First, we would have to keep the milk separate, and we can't because we cannot get

the equipment. Second, it would be a health hazard leaving the milk out in the sun, weather, etc. If we can take it in with our own supply we can handle it just as we do our Grade A and have a better grade of milk."

Mr. Liles was asked several questions by the Board members in order to clarify statements and requests desired. He called on various men to tell what per cent of the total milk supply in this State is produced in North Carolina. Remarks were also made by Mr. Coble of Lexington, Mr. Clevenger of State College, Mr. Gardner of Goldsboro, Mr. Kyser of Greensboro, and several others, all tending to prove that there is not enough Grade A milk in this State to supply the demand; that we cannot produce two grades of milk in one plant, and that the Army is unwilling to accept anything lower than the civilian population uses.

During the lengthy discussions, Secretary Reynolds presented some statistical figures relative to milk-borne diseases, showing that from 1939-1941 of a total of 118 disease milk-borne outbreaks, 26 of the outbreaks were from New York. This included raw milk and all other milk products in New York, and Doctor Reynolds maintained, under existing circumstances, that New York's milk should not come into North Carolina. We cannot depend upon pasteurization for purification, but for an added protection.

The Board asked that the resolutions offered by Mr. J. M. Jarrett, Engineer from the Office of Milk Sanitation, which were presented at the meeting on November 14, 1942, be read. These were discussed in detail, after which the Board retired, leaving the Dairy Industry to discuss the adjusted present standards and resolutions. After a short period, the Board returned and on behalf of the Dairy Industry, Mr. Liles thanked the Board of Health for their consideration—and that the milk industry group present unanimously voted to adopt the resolution read and pledged to live up to it as best they could.

There being no further business, the delegation adjourned.

The Board went into executive session. They realized that the problem before them was perplexing, political and economical, as well as a sanitary one, and that some solution must be found. The Board realized that there was an existing emergency but they felt that they were not justified in lowering the milk standards to such an extent as to create health hazards.

After a full and careful discussion, Dr. H. Lee Large presented the following motion:

"That the State Board of Health adhere to its present regulations for the production and processing of all grades of milk to be sold in the State. That the State Board of Health create, for the duration of the emergency, another grade of milk to be known as 'pasteurized milk.' It is further understood that as the milk shortage decreases in the critical area that the permits for handling and the sale of pasteurized milk as defined in Items 1-9 inclusive, according to revised standards for Grade B milk for pasteurization will be eliminated. It is also understood that the health officer reserves the right, at any time, to revoke the permit for the handling of emergency pasteurized

milk should it fail to meet any of the provisions outlined in the following requirements. This shall apply to any of the producing farms, or to the plant itself—this milk to be produced and processed under sanitary regulations conforming to the following regulations and standards:

"Grade B milk for pasteurization: Milk which contains not less than $3\frac{1}{4}$ per cent fat and 8 per cent solids not fat, is clean and wholesome and contains not more than 500,000 bacteria per ml. as determined by plate count prescribed in Standard Methods or which has a reduction time of not less than five hours; and which is produced on farms meeting at least the following requirements of sanitation:

- "Item 1. *Physical examination of cows.* All cows shall be T. B. tested and free of other diseases.
- "Item 2. *Milking.* Cows shall be milked in a place affording protection from dust and inclement weather. Milking place must be kept clean and manure must be removed daily. General environment should be kept in a clean and sanitary condition.
- "Item 3. There shall be a small pouring-up room kept clean and free from flies. Milk shall be strained through single service strainers. An approved type of milk pail shall be used.
- "Item 4. Cows shall be clean before milking, udders and teats washed with a chlorine solution. All utensils used in milking and handling of milk shall be cleaned with alkali cleaning powder and stored in a place free from dust and flies. Immediately before each usage all equipment used at that period shall be retreated with a chlorine solution of proper strength (not less than 50 p.p.m.). This chlorinated water, after treating the equipment, may be used for washing cows' teats and udders as well as rinsing the milkers' hands.
- "Item 5. Some means of cooling shall be provided. Milk shall be cooled immediately after milking to 70° F. or less and this temperature shall be maintained until delivery to the plant.
- "Item 6. This emergency milk, after pasteurization, must have an average bacterial count not to exceed 30,000 per ml. and delivery temperature of 50° F. or less.
- "Item 7. All milkers shall wear clean outer garments and shall maintain themselves in good physical health.
- "Item 8. Each farm shall have a sanitary privy complying with the State law for sanitary privies.
- "Item 9. Water supplies shall be adequate, accessible and of approved quality."

Motion seconded by Dr. H. G. Baity, and carried unanimously.

On February 19, 1943, the Board met in regular session.

Secretary Reynolds gave the Board a brief and concise review of the activities regarding the emergency milk shortage situation in the State; of his various conferences with the State and Territorial Health Officers Association; the Surgeon General, and the milk distributors of the State; of the Board's decision to adhere strictly to their present milk ordinance and disapprove the recommendation of the Surgeon General; and, informed the Board that a meeting had been called for

February 22, 1943 of all county health officers of the State to settle the milk controversy once and for all. Durham County had tried to get the support of the government in lowering the grade of their milk, and in asking for an opinion from the U. S. Public Health Service Secretary Reynolds read from a copy of a telegram in reply to their request:

NIGHT LETTER

"Washington, D. C.
January 20, 1943

Dr. J. H. Epperson
Superintendent, City and County Health Dept.
Durham, North Carolina

REURTEL SURGEON GENERAL'S LETTER OCTOBER 10 SUGGESTED POOLING OR OTHER PROCEDURE TO RELIEVE ARMY MILK SHORTAGE WITHOUT EXCESSIVE USE CRITICAL MATERIALS. MOST STATES REPLYING INCLUDING NORTH CAROLINA PREFER RETAIN GRADE LABELING. AT SURGEON GENERAL'S CONFERENCE DECEMBER 5 GENERAL HARDIGG, ARMY QUARTERMASTER DEPARTMENT, AGREED ARMY AND CIVILIAN SHOULD TAKE PROPORTIONAL SHARES GRADE A AND LOW GRADE MILK. SUGGEST FOLLOW STATE BOARD HEALTH POLICY.

A. W. FUCHS
U. S. PUBLIC HEALTH SERVICE"

Oaths of office were signed by Dr. Hubert B. Haywood and Dr. J. N. Johnson for re-appointments as members of the N. C. State Board of Health, for terms expiring May 1, 1945. Mr. C. C. Fordham, Jr. was re-appointed by Governor Broughton, but was absent from the meeting as he is serving in the armed forces.

Secretary Reynolds gave a report of SB No. 40 and SB No. 68, stating that after a hearing with the legislative Health Committee, SB No. 40 was carried over and SB No. 68 received an unfavorable report. Also Secretary Reynolds mentioned the Naturopath Bill, which he considered a menace to public health, and asked that Doctor Haywood report on this bill as he had met with the Committee. Doctor Haywood said that the bill had not been disposed of, but that he thought it would NOT pass.

The Secretary informed the Board of a conference held in Washington, D. C. on February 12, 1943, with the Vital Records Committee of the State and Territorial Health Officers for the purpose of drafting a bill to be presented to the State and Territorial Health Officers Association for approval at their meeting to be held in March, and also read a copy of the ACT. While discussing vital statistics, Secretary Reynolds stated that the Board of Health is going to introduce a bill in the present Legislature "Relating to the registration of birth certificates by amending section 7101 (b) of Volume 2 of the Consolidated Statutes of 1919, as amended." (One dollar birth registration fee to be divided equally between the register of deeds of the county of registration and the State Board of Health.)

Secretary Reynolds read the following petition to the Board for the consolidation of the registration districts of vital statistics and the appointment of the local health officer as local registrar for Rowan County:

"The State Board of Health having received petitions from the Rowan County Board of Health, the local Health Officer, Board of County Commissioners, and the mayor of Salisbury for the consolidation of the registration districts of vital statistics and the appointment of the local Health Officer as local registrar; and it being held that vital statistics is the proper function of a county health department and if the duties imposed therewith are actively discharged, improvement in registration will result; Now, therefore, as provided in sections 7088 (a) and 7089 (a) of the consolidated Statutes, the consolidation of the registration districts of Rowan County and the appointment of the County Health Officer as local registrar for the county is hereby made, subject to final approval of the State Board of Health. This November 3, 1942.

Signed: Carl V. Reynolds, M.D.,
Secretary-Treasurer and
State Health Officer."

Upon motion of Doctor Dixon, seconded by Doctor Johnson, the above petition from Rowan County was unanimously passed.

In the absence of Dr. G. M. Cooper, Director of the Division of Preventive Medicine, Dr. Merle J. Carson, Assistant, was called in to explain the plan of obstetric service for the wives of petty officers and privates in the armed forces provided by the department of Maternal and Child Health Service of the State Board of Health with funds available from the U. S. Children's Bureau out of funds allotted to North Carolina. The plan for military care as outlined in our communications to the health officers in September, 1942, and again in January, 1943, outlined a program by which obstetric care could be paid for for the wives of noncommissioned officers and enlisted men.

This was primarily based on home deliveries whereby we would agree to pay the local physicians \$25.00 for less than five prenatal visits, home delivery, and postpartum care, or \$35.00 for five or more prenatal visits, plus home delivery and postpartum care. If these patients wished to pay their own hospital bill, they could do so, and we would pay the physician the home delivery fees whether they delivered the patient at home or in the hospital.

In a few of the hospitals in the State we have contracted to pay the hospital bill for these patients at the rate of \$3.00 a day up to a maximum of ten days for normal obstetrical care; and, in these cases where we pay the hospital bill, the fee for the physician is set at \$25.00. In occasional complicated cases we reserve the right to make individual rulings on hospital bills for some of these patients; whereby, if the case warranted such a procedure, we would agree to pay the hospitals at the rate of \$5.00 a day for a maximum of fourteen days' hospitalization. Such cases would have to be taken up individually and each case judged on its individual merits.

This program has at the present time insufficient funds to allow us to continue the program on a permanent basis; and, if more funds

are not secured in the near future, the program will have to be discontinued.

Secretary Reynolds told the Board about the orientation course for emergency personnel of doctors, nurses, and sanitarians for the duration that had been conducted by the North Carolina State Board of Health, in coöperation with the U. S. Public Health Service, the first training course of its kind in the United States. The course consisted of two weeks didactic instruction, and was followed by four weeks of field instruction under the direction of representatives of the State Board of Health.

Secretary Reynolds referred the Board to a copy of letter written to Board members by Dr. H. G. Baity dated February 9, 1943, a copy of which was also sent to Governor Broughton. Doctor Baity was leaving the United States for a temporary assignment in South America, therefore, he would be deprived of the opportunity of expressing his views at a Board meeting, and he wished to register some objections to the Board's policy as relates to "leaves of absence to persons in the State Health organization, who *voluntarily* enter the armed services of the United States or any other type of war services." . . . Doctor Reynolds reviewed fully, but briefly and concisely, the steps taken relative to deferment of men in public health activities that were in key positions, stating that such action had been deemed wise and necessary to protect the health of the citizens of North Carolina as well as that of the armed forces. As far back as 1940, a conference was held with the State and Territorial Health Officers, and it was determined, by an agreement with the Army and Navy officials, and the Surgeon General of the U. S. Public Health Service, that the personnel holding strategic positions in the State and local health departments would remain intact and that they would be placed on the deferred list unless in case of dire necessity. Later on the armed forces began the calling of public health personnel throughout the United States, and your Secretary had another conference in Washington with Surgeon General Parran of the U. S. Public Health Service; then a meeting was called of the Federal Relations Board of the State, Territorial and Provincial Health Officers. The Chairman of the Committee, representatives of the Public Health Service and your Secretary then had a conference with the Surgeon General of the Army and a representative of the Surgeon General of the Navy, reviewing the advisability of placing personnel of the state and local health departments on the deferred list. It was agreed at that time by the Army and Navy that such an arrangement could, and should be made for employees holding strategic or key positions, and that this action was essential to the preparedness program. Meetings and conferences have also been held with the Procurement and Assignment Service for the deferment of doctors, dentists, engineers, sanitarians as well as nurses.

The result of above meetings, conferences, etc., was that we were successful in getting commissions issued *only to those occupying necessary key positions.*

Further, on special appeal of the personnel who desired to go to the armed forces solely for patriotic reasons, they were not denied this privilege when their positions could be filled. In several instances, the applicant's desire to change his or her position from serving among our personnel to that of the armed forces has been due to monetary considerations.

No action has been taken by your Secretary that has not been approved in executive session by the Surgeon General of the Army, the Surgeon General of the Navy, the Major Committee of the Procurement and Assignment Service, and with the full endorsement of the Association of the State and Territorial Health Officers.

Dr. J. N. Johnson stated that he thought the Board "should take the position of supporting our State Health Officer." Immediately Dr. Hubert B. Haywood moved "That the Board give a vote of confidence to our State Health Officer." Motion seconded by Dr. W. T. Rainey, and carried unanimously.

Upon motion of Doctor Haywood, seconded by Doctor Dixon, the Board expressed itself unanimously as follows regarding the death of Dr. John A. Winstead, which occurred on December 25, 1942, and a letter transmitting this message of sympathy has been forwarded to Mrs. Winstead:

"The North Carolina State Board of Health expresses to Mrs. John A. Winstead and family its deepest sympathy in the untimely death of Doctor Winstead, wherein the State of North Carolina has suffered an irreparable loss.

"Signed: Hubert B. Haywood, M.D.
G. G. Dixon, M.D."

A special called meeting of the Board was held Wednesday, April 21, 1943, at the request of Governor J. Melville Broughton, for the purpose of conferring to discuss the milk situation in North Carolina with the Governor and the milk producers. The place of meeting was in the Governor's office.

A motion was made at the Governor's conference that the Board appoint a committee of three, to be named by President Craig, to meet with a committee of three, appointed by the Governor from the milk producers group, to meet in conference and to evolve, if possible, some milk control regulation which would be satisfactory to all concerned.

Following the meeting with the Governor and the milk producers, President Craig appointed—on April 22, 1943—Dr. Hubert B. Haywood, Raleigh; Dr. H. Lee Large, Rocky Mount; Dr. John LaBruce Ward, Asheville, and Dr. Carl V. Reynolds, State Health Officer, member ex-officio, as members of the Board, to meet with the committee appointed by the Governor, namely Mr. George L. Coble, Lexington; Senator L. Y. Ballentine, Wake County; Mr. J. Milton Mangum, Wake County, and Mr. W. Kerr Scott, Commissioner of Agriculture, ex-officio member, to confer together to see if they could not come to an understanding and formulate such an agreement that would be satisfactory to all parties concerned.

This committee of the whole met on April 28, 1943, at 10:30 A.M., in the auditorium of the Laboratory of Hygiene. Those being present were:

Dr. Hubert B. Haywood
Dr. John LaBruce Ward
Dr. H. Lee Large
Dr. Carl V. Reynolds, Ex-officio
Mr. George L. Coble
Senator L. Y. Ballentine
Mr. J. Milton Mangum
Mr. W. Kerr Scott, Ex-officio

After much discussion, the following resolution was introduced:

"ARTICLE 1.—That for the duration of the war, or until such time as the Committee on Milk Sanitation hereafter named shall find that the emergency no longer exists, emergency milk areas be created, in which all milk produced and processed shall be so produced and processed under rules and regulations created by a committee composed of the Secretary of the State Board of Health, Mr. W. Kerr Scott and Mr. L. Y. Ballentine and offered to both the public and the Army under the grade of pasteurized Milk.

"ARTICLE 2.—That all regulations created by this Committee shall be equal to or greater than the milk standards required by the United States Army for Pasteurized Milk."

"Mr. L. Y. Ballentine made the motion that Dr. Hubert B. Haywood, as Chairman of the Joint Committee, be instructed to communicate the action of the Committee to the Governor and ask for his suggestions and coöperation. This motion was seconded by Dr. H. L. Large, and passed unanimously."

The annual meeting of the State Board of Health was held, as required by law, on the second day of the meeting of the Medical Society of the State of North Carolina, at the Sir Walter Hotel, Raleigh, North Carolina, *May 11, 1943*. President Craig presided.

The report from the special committee appointed by the Governor and President Craig for the purpose of conferring to discuss the milk situation in North Carolina was presented to the Board for its approval or disapproval. The following motion was made by G. G. Dixon, seconded by Dr. J. N. Johnson, and unanimously carried:

"ARTICLE 1.—That for the duration of the war, or until such time as the Committee on Milk Sanitation hereafter named shall find that the emergency no longer exists, emergency milk areas be created, in which all milk produced and processed shall be so produced and processed under rules and regulations created by a committee composed of the Secretary of the State Board of Health, Mr. W. Kerr Scott and Mr. L. Y. Ballentine, and offered to both the public and the Army under the grade of Pasteurized Grade A milk, or when this milk is pooled with Grade C milk that it take the lower grade of pasteurized Grade C milk.

"ARTICLE 2.—That all regulations created by this Committee shall be equal to or greater than the milk standards required by the United States Army for Pasteurized Milk."

On motion, Dr. S. D. Craig and Dr. Hubert B. Haywood were appointed a committee to meet with the Governor and explain to him their action on the milk situation.

After a lengthy discussion, the members of the Board realized the emergency of the milk situation in certain areas in North Carolina, and it was their purpose and intent to solve the problem without any detrimental effect to the milk producers in the State of North Carolina but with the keen realization that they should uphold the grading system so firmly entrenched within the State. They feel further that under a more strict supervision and regulation of the milk producers within the State, a safer milk supply could be secured both to the armed forces and the citizens of North Carolina than under the present method of allowing ungraded or unsupervised milk coming from out-of-State and sold as Grade A pasteurized milk to both the citizens and the armed forces. The members of the Board seemed to think that this constituted a mislabeling of the milk now being sold within the State and should not be allowed.

As a policy, the Board feels that the milk container should be labeled as to the quality of milk contained therein and the grade it carries expressed as is set forth in the milk ordinance and code of the U. S. Public Health Service.

Dr. R. E. Fox, Director of the Division of County Health Work, presented a memorandum regarding travel allowances being paid on the basis of earned mileage at five cents per mile. It was recommended by the State Board of Health "to make its contract requirement read five cents per mile for earned travel in view of the fact that the State Board of Charities and Public Welfare have done this for the county welfare departments, and county farm agents and home demonstration agents operating under the Extension Service of the Department of Agriculture are on a similar basis." The recommendation was approved by the Board.

The Board approved the North Carolina State Board of Health "Personnel Regulations" governing attendance, vacation, sick leave, and other types of leave, as well as regulations relative to salary adjustments and advancements.

Doctor Hubert B. Haywood brought to the attention of members of the Board the physical condition of Dr. G. M. Cooper. Doctor Haywood moved that Doctor Cooper be given one month's vacation with pay. Motion seconded by Dr. John LaBruce Ward, and carried.

"Board Policies for Allocation of Funds to Counties for Health Work" as written for the fiscal year beginning July 1, 1942 be extended through the fiscal year beginning July 1, 1943, were recommended, and approved.

Members of the Board made a motion requesting that the State Health Officer's salary be increased to \$8,000.00 per year. Motion carried.

There was a special called meeting of the North Carolina State Board of Health on June 29, 1943. The purpose of the meeting was to consider the approval of a grant for a Venereal Disease Isolation Hospital to be located at Charlotte, North Carolina, for the intensive treatment of venereal diseases, the hospital to be established and maintained with funds coming from the Federal Works Agency.

Secretary Reynolds then read a letter dated June 12, 1943 from Mr. Kenneth Markwell, Regional Director of the Federal Works

Agency, Richmond, Virginia, which enclosed copies of the "Government's Offer" of financial assistance, "General Instructions and Acceptance Forms," etc. Copy of "Offer for Maintenance and Operation" dated June 10, 1943, being Project No. N. C. 31-M-61, was read, and copy filed. The sum to be contributed by the Government for the operation and maintenance of the venereal disease detention hospital facilities located at Charlotte for a year is \$210,200. The Secretary also read the resolution "Accepting the Offer of the United States of America" to the State Board of Health for application of Federal assistance under the Defense Public Works program.

Secretary Reynolds read a letter from Dr. A. M. Whisnant, President of the Palace Realty Company, Charlotte, North Carolina, transmitting two copies of properly executed lease of the building formerly occupied by the Charlotte Sanatorium. This lease could not be accepted as originally drawn because the Federal Government retains the right to cancel its obligation to the State Board of Health at any time. Therefore, a new lease had to be drawn. This was done and returned to the State Board of Health, which was read by Doctor Reynolds to the Board, and a copy filed.

On motion of Dr. G. G. Dixon, seconded by Dr. J. N. Johnson, the resolution accepting the offer of the Federal Works Agency, Project No. N. C. 31-M-61, of Federal assistance for maintenance and operation of the venereal disease detention hospital at Charlotte, North Carolina, and also the lease of the building known as the "New Charlotte Sanatorium," was unanimously accepted.

In further discussion of the project, Secretary Reynolds read the signed statement to the Board of Health making the Wachovia Bank & Trust Company, Raleigh, North Carolina, the depository bank. He also presented a list of personnel to be assigned to the hospital at Charlotte by the United States Public Health Service.

A committee composed of Governor J. Melville Broughton, Mr. W. Kerr Scott, member ex-officio, Senator L. Y. Ballentine, Mr. J. Milton Mangum and Mr. J. V. Whitaker of the Agriculture Department, met in executive session with the Board—the object being to renew the discussion of the milk problem.

President Craig asked Doctor Haywood, who is Chairman of a Special Committee from the State Board of Health and the Milk Producers Association, to read a report which had been submitted by the Committee after a conference with the Governor. Doctor Haywood read the following report:

"I desire to report to the State Board of Health the results of my conference with Governor Broughton. Dr. Douglas Craig and I delivered to the Governor our report in regard to the resolution by the Board of Health endorsing the maintenance of Grade A milk as it is, and our unwillingness to lower the standards of this milk.

"The Governor feels and is informed that there is a grade of milk in substantial quantities produced in North Carolina which does not meet the A Grade largely by reason of inability of producers to get essential equipment under war conditions, which milk is better than Grade C milk and in fact even better than milk which is coming into North Carolina from other states at the present time and being pooled with milk pasteurized in bulk plants of the state and going out to

consumers under the label of Grade A Pasteurized Milk. Therefore, he feels that milk produced in this State should not be arbitrarily classed as Grade A and Grade C milk, but that there should be established a Grade B milk, which he is informed previously did exist. He thinks that the sense of the resolution passed by the State Board of Health virtually fixes the situation of only two grades; that is, Grade A and Grade C, and leaves no opportunity for the higher grade of North Carolina milk which under reasonable and proper standards should qualify as Grade B. The Governor and a committee of North Carolina milk producers, who are themselves producers of Grade A milk, believe that a Grade B should be established, required to meet certain standards of safety as to bacterial count and sediments as may be prescribed by the Secretary of the State Board of Health; and that such Grade B thus established, when pasteurized under approved conditions in emergency areas of the State as declared by the Governor, should be permitted to be sold in such areas where there is an admitted shortage of Grade A milk, and to be sold under the label 'Pasteurized Milk.'

"I move, therefore: (1) that Grade A Pasteurized Milk be continued as it is in North Carolina; (2) that there be established a Grade B milk under standards set up by the sanitary engineers of the State Board of Health and approved by the Secretary of the Board, Dr. Reynolds, and that such milk, when pasteurized under conditions approved by the Secretary, be permitted to be sold under the label 'Pasteurized Milk'; provided, however, that if such Grade B milk is mixed with Grade C milk it shall automatically become Grade C milk and that distribution of such be immediately stopped by the State Board of Health or proper county authorities.

"It will be further understood that this is an emergency measure and is to be discontinued when the war emergency ceases.

"Respectfully submitted,
Hubert B. Haywood, M.D."

Dr. G. G. Dixon moved the acceptance of the report. Motion seconded by Dr. J. N. Johnson, and carried.

Governor Broughton then spoke, stating first, that he had the very highest regard and respect for the Health Department and the Secretary of the Board, and that on many occasions he had publicly pointed to the record of the Board of Health with pride—and justified pride. . . . That he appreciated the protection which the Board has undertaken to give the people and children of this State in the amount of good milk and feels that it is bearing fruit. If the war had not come on and increased the demands, we would have had an ample supply of Grade A milk; but the war accentuated our difficulties, bringing in added population at such places as Fayetteville, Wilmington, Charlotte and Durham. Only by reasons of these conditions has it been necessary to consider any modification, or temporary adjustment. While war has brought headaches in respect to the Board of Health and other departments, as well as in other lines, yet I think it has also brought benefits because this increased volume of business has prompted some of the larger producers to exercise diligence and resourcefulness. By the time the war is over we will have a surplus of milk and can export it. . . . The Governor expressed himself as being opposed to the elimination of Grade A milk and that we should not deviate from the principle of having a Grade A milk standard, but that he thought Doctor Haywood's suggested resolution was reason-

able, and that he would appreciate the Board's considering it, or some method whereby the matter could be settled.

Mr. Ballentine stated that he wished to qualify what the Governor had said by saying that Doctor Reynolds, in the capacity of directing the inspectors, can make or break this resolution if he is too stringent on inspection of equipment. If he will work on a practical basis, it will work out. Stick to regulations as to equipment—it might be Class C. There is no disposition on the part of producers to reduce the standard of milk. I advise to let down on the physical equipment but not on the standard or quality of milk.

Secretary Reynolds stated that the milk law was under the jurisdiction of county boards of health. If this resolution is passed it will come under the State Board of Health for these emergency areas. Further, every health officer in the State of North Carolina is opposed to having milk sold under a pasteurized label without being labeled "Pasteurized Grade A," "Pasteurized Grade B," or "Pasteurized." County Medical Societies are unanimously opposed to same thing.

After the retiring of the Committee composed of the Governor and others, the Board re-convened. The report, as above quoted, was discussed fully. It was the decision of the Board that for the duration of the war, or until such time as the Committee on Milk Sanitation shall find that the emergency no longer exists—emergency milk areas be created and designated by the Governor—in which all milk produced and processed shall be so produced and processed under rules and regulations as set forth in the resolution as presented by Doctor Haywood. On motion of Doctor Dixon, seconded by Doctor Large, the following resolution was unanimously carried:

"(1) That Grade A pasteurized milk be continued as it is in North Carolina; (2) that there be established a Grade B milk under standards set up by the sanitary engineers of the State Board of Health and approved by the Secretary of the Board, Doctor Reynolds, and that such milk, when pasteurized under conditions approved by the Secretary, be permitted to be sold under the label "Pasteurized Milk"; provided, however, that if such Grade B milk is mixed with Grade C milk it shall automatically become Grade C milk and that distribution of such be immediately stopped by the State Board of Health or proper county authorities.

"It will be further understood that this is an emergency measure and is to be discontinued when the war emergency ceases."

For the information of the Board, Secretary Reynolds reported his meeting in New York with the Trustees of the Z. Smith Reynolds Foundation. Secretary Reynolds asked that the Foundation continue its present appropriation of \$175,000, and they agreed. Then he asked the Foundation for a liquidating fund of \$25,000 to be made payable to the State Board of Health, the object being to establish a Division of Venereal Disease and to employ three men to put in the field.

Secretary Reynolds informed the Board of petitions from Iredell County and Union County for the consolidation of registration districts of vital statistics. These were referred to the next regular meeting.

A regular meeting of the Board of Health was held September 23, 1943.

Dr. J. N. Johnson administered the Oath of Office to Dr. H. Lee Large, which was duly signed. Doctor Large was re-appointed as a member of the North Carolina State Board of Health for a term expiring May 1, 1947. Also Oaths of Office were administered and properly executed by Mr. Larry I. Moore, Jr., Wilson, North Carolina, for a term expiring May 1, 1947—Mr. Moore succeeding Dr. H. G. Baity who is at present engaged in Government work in South America, and by Dr. James O. Nolan, Kannapolis, North Carolina, for a term expiring May 1, 1945. Doctor Nolan succeeded Mr. C. C. Fordham, Jr., who is now an officer in the Navy.

Secretary Reynolds read a telegram from Dr. W. T. Rainey expressing his regrets at being unable to attend the meeting. Doctor Reynolds also stated that he had received a letter from Doctor Ward stating that due to professional duties he would be unable to attend.

Responding to a request, Secretary Reynolds reviewed briefly the milk situation, and stated that Mr. Foard and he had met with members of the Milk Committee and had prepared three different ordinances carrying out the U. S. Public Health Service Grade B specifications, but none of the ordinances prepared seemed to satisfy the Committee, hence we asked the Committee to prepare an ordinance to be submitted to the Board of Health. So far, this has not been done, and the milk situation stands as it did in the beginning, and counties and cities that have a milk ordinance carry it out as they see fit. Secretary Reynolds read to the Board, a detailed field investigation of the milk supply of the Coble Dairy Products Company receiving stations at Walnut Cove, Yanceyville, Ramseur and Guilford College, dated August 23-26, 1943. After a full discussion of the manner in which milk, of all grades, was being handled and distributed to the general public from these stations, it was deemed wise that the Secretary of the Board of Health write to the Coble Dairy Products Company. Whereupon Dr. Hubert B. Haywood moved that due to the report on the Coble Dairy Products Company Receiving Stations which had just been read to the Board of Health, that the Secretary of the Board be requested to write Mr. Coble demanding that this condition be remedied immediately. Motion was seconded by Dr. J. N. Johnson, and unanimously carried.

Secretary Reynolds presented to the Board petitions from the County Boards of Health, the local Health Officers, and the Boards of County Commissioners of *Union, Iredell and Scotland counties*, for the consolidation of the registration districts of vital statistics and the appointment of the local Health Officers as local registrars. Doctor Large moved that the above petitions from Union, Iredell and Scotland counties relative to the consolidation of registration districts of vital statistics be approved. Motion seconded by Doctor Dixon and carried.

Following a further discussion of the milk situation and the possibility of a shortage of Grade A milk, Doctor Large presented the following resolution, and if adopted, that a copy be sent to Governor J. Melville Broughton:

“Whereas, It has come to the attention of the State Board of Health of North Carolina that numerous Grade A dairies are being forced

out of business because of greatly increased costs of production and if the situation is not corrected the Grade A milk supply will become critical;

"Therefore, The State Board of Health of North Carolina respectfully recommends that during the present critical situation the distributors of Grade A milk who conform to the ordinance and code of the U. S. Public Health Service as Grade A producers be allowed to increase the price of such Grade A milk *one cent* per pint provided that at least 60 per cent of this increase be passed on to the producer of such Grade A milk."

"After a general discussion, Doctor Large's resolution was seconded by Doctor Dixon, and unanimously adopted."

Secretary Reynolds gave a brief synopsis of the activities of the Rapid Treatment Center located at Charlotte, North Carolina, stating that to-date approximately 89 syphilitic patients had been admitted to the Institution, and that about 15 patients were being discharged as cured and that about that many were being received. Also Doctor Reynolds reported to the Board that the U. S. Public Health Service had secured the NYA Center at Durham, North Carolina, for the same purpose. This treatment center is to be financed entirely by the U. S. Public Health Service but operated coöperatively by the Public Health Service and the State Board of Health. The Center will accommodate between 200 and 250 patients and will be open for patients by October 15. Doctor Reynolds said that an effort is being made now to "round up" Selective Service registrants who were rejected on account of syphilis with the idea of sending them to one of the Rapid Treatment Centers for treatment, and then calling for their induction into the armed services.

The Secretary reviewed his meeting with the members of the Board of Trustees of the Z. Smith Reynolds Foundation at which time they granted the Board of Health an appropriation of \$175,000 and also made available a liquidating fund of \$25,000 for a better supervision of the syphilis program in the State. This subject was given careful and thorough study, and our staff came to the conclusion that if this syphilis program was carried out it would make our general health program "lopsided"—so for the best and most effective work it was decided to divide the State into three districts—a director for each district to head a general health program. This plan was presented to the Reynolds Foundation, and it was accepted.

The State has been divided into three districts, and the Directors of the Districts will be as follows:

- District No. 1—Dr. J. C. Knox
State Board of Health
Raleigh, North Carolina
- District No. 2—Dr. R. E. Fox
State Board of Health
Raleigh, North Carolina
- District No. 3—Dr. J. Roy Hege
c/o Forsyth County Health Department
Winston-Salem, North Carolina

A new "Organization Chart" of the North Carolina State Board of Health has been drafted to conform to the new plan. Doctor Rey-

nolds also stated that the U. S. Public Health Service had agreed to allow the Board of Health funds to provide definite office space for the district directors.

Doctor Large moved that the new "Organization Chart" and the new Division of Local Administration be accepted. Motion seconded by Doctor Dixon, and carried.

On motion of Doctor Haywood, seconded by Doctor Large, Mr. J. M. Jarrett was unanimously elected as Director of the Division of Sanitary Engineering.

A regular session of the Board of Health was held on December 29, 1943.

President Craig administered the Oath of Office to Dr. G. G. Dixon and Dr. John LaBruce Ward, both re-elected by the N. C. Medical Society—terms expiring in 1947.

Secretary Reynolds presented a request from the Granville County Board of Commissioners, the County Board of Health and the Health Officer, to the State Board of Health for the consolidation of the registration districts of vital statistics of Granville County, and the appointment of the Health Officer as local registrar. On motion of Doctor Dixon, seconded by Doctor Rainey, the appointment of the Granville County Health Officer as local registrar of Vital Statistics, was carried.

Doctor Reynolds made a report on the progress and activities of the Rapid Treatment Center at Charlotte, stating that about 400 patients had been admitted for treatment to date, and nearly 400 discharged, with only one death. The U. S. Public Health Medical Center at Durham was not ready to receive patients until about November 15 and to date they have received approximately 67 patients.

The Secretary also told the Board that additional office space had been badly needed and that the U. S. Public Health Service had allowed the Board to spend \$3,500.00 for improvements and additional office space in the Armory Building on Caswell Square and in this way we have ten new offices to be used by the District Directors and their personnel.

Dr. G. M. Cooper, Director of Maternal and Child Health Services, was present and discussed, in full, the question of the participation of the osteopaths in the Emergency Maternity and Infant Care program. Doctor Cooper asked Doctor Reynolds to read a letter to the Board addressed to Hon. Harry McMullan, Attorney General, from Attorney J. C. B. Ehringhaus, dated December 8, 1943—writing as Attorney for the Osteopathic physicians of North Carolina with regard to the operation of maternal and child health service and the emergency maternity and infant care in North Carolina; and also a letter from Mr. McMullan to Doctor Reynolds.

Secretary Reynolds then told the Board of a conference participated in by Attorney Ehringhaus, Mr. McMullan, himself and others, in which the subject of the osteopaths rendering medical obstetric service was discussed.

The Board members discussed the question fully, after which a motion was made by Doctor Dixon that the Board defer action on

obstetric service under the Emergency Maternity and Infant Care program until further information can be obtained upon osteopathic obstetrics. Motion seconded by Doctor Ward and carried unanimously.

Doctor Haywood moved that the Board of Health authorize Doctor Reynolds, the Secretary, to act for the Board of Health in obtaining the information on osteopathic obstetrics and report to the Board at its next regular meeting. Motion seconded by Doctor Rainey, and carried.

The annual meeting of the State Board of Health was held at the Carolina Hotel, Pinehurst, North Carolina, May 3, 1944, President Craig, presiding.

Dr. C. P. Stevick appeared before the Board and reviewed the proposed revised changes in regulations No. 27 and No. 48 in the control of communicable diseases which pertain to the two venereal diseases for which treatment facilities have been provided by the two rapid treatment centers. Doctor Stevick left a copy of the changes recommended with each member of the Board for their review, approval or disapproval.

Regulation 27: "The minimum control measures for and certain facts pertaining to GONORRHEA are declared to be as follows" . . . was approved, and copy attached to minutes.

Regulation 48: "The minimum control measures for and certain facts pertaining to SYPHILIS are declared to be as follows" . . . was approved and copy attached to minutes.

Doctor Dixon moved, and seconded by Doctor Haywood, that Doctor Cooper be directed to take a month's vacation. Motion seconded. Doctor Cooper expressed appreciation for the Board's giving him a month's vacation. He also spoke of the EMIC program. (Emergency Maternity and Infant Care.)

Doctor Ward moved, seconded by Doctor Haywood, that the Seminar at Saluda, North Carolina, be approved and that money allocated for scholarships be allowed. Motion carried.

In order to create facilities to direct a program of tuberculosis and cancer control at the State level, Doctor Haywood moved that Bureaus for the creation of these two activities, namely, Tuberculosis and Cancer, be set up so that the State Board of Health will be on record as approving the creation of these facilities making them a part of our Public Health organization. Motion seconded by Doctor Dixon, and unanimously carried.

The following bureaus were authorized:

1. Bureau of Tuberculosis Control.
2. Bureau of Cancer Control.
3. Bureau of Nutrition.
4. Bureau of Epidemiology.
5. Bureau of Malaria Control.

Dr. Carl V. Reynolds, the State Health Officer, submitted to the Board his annual report to the Conjoint Session.

The State Board of Health meeting was called for two days, May 2 and 3, 1944.

ANNUAL REPORT NORTH CAROLINA STATE BOARD OF HEALTH To CONJOINT SESSION STATE MEDICAL SOCIETY

CARL V. REYNOLDS, M.D.
Secretary and State Health Officer
May 12, 1943

Since the 1942 report of the activities of the North Carolina State Board of Health was submitted to the members of the North Carolina State Medical Society, there have been many progressive advances made (in spite of the adversities of war) within its nine divisions from coördinated programs at the State level, with similar progress at the city and county levels.

These advances will be enumerated in part in descriptive material listed under the various departments. It is my purpose at this time to review a few of the high points with the hope that it will stimulate a desire for a more complete picture of the work which may be read during your leisure moments.

Upon every occasion that I address this body, or any other medical group in subjects relating to preventive and corrective medicine, I have foremost in my mind, the thought that we have been, we are and will be making changes for the better or for the worse, and it seems to me that it is imperative that we become concerned lest other agencies than our own control and direct advances which may terminate in adversities.

I shall not discuss social medicine, State medicine, nor contract practice, for it is not the time or occasion, but I deem it not out of place, but instead my duty to inform you that there are vast sums of money being spent, and more in the hopper, that will become available, and that we should awaken ere it is too late to plan, guide, direct a better care program that will contribute to the advantages of all and to the detriment of none.

Fundamental changes are being made and changes should be made to more adequately meet the crying needs of humanity.

A happy solution to this perplexing problem can be had.

The Federal, State and municipal governments are realizing and appreciating the value of health in the social and economic structure. These agencies are now investing vast sums of money to give to their citizenry restorative measures, and so, I repeat, that as medical men we must realize the vast importance and effect of these appropriations and seize the opportunity to guide, to direct and to control its policies—we can do nothing by sitting on the side lines and “booing.” We must get in there and pitch!

In 1943 North Carolina was expending from State, County and City funds and from philanthropic sources in preventive medicine \$604,-

312.00 Today we are expending \$3,148,000.00 Is that significant, and does it indicate a trend?

We have 808 workers among our happy, contented and enthusiastic family, most all of whom have had special training in respective fields. It is to the credit of our Board of Directors—the policy-making body—for their deep interest and time, that we have made few mistakes, and to the division directors who administer the activities, the general personnel at the State level and at the same levels intra-State, that enviable advancements have been made.

In this all-inclusive war, the personnel seem to have an endowed courage and energy, coupled with the capacity, the understanding and love for service beyond self; so, it is with keen enthusiasm I will present to you some excerpts of their accomplishments.

In our School of Public Health at the University of North Carolina another meritorious step has been taken in the establishment of a division for a course in Public Health Nursing. Miss Ruth W. Hay, Professor of Public Health Nursing, is director, and as evidence of its need and importance, we had enrolled this year 38 nurses.

We are glad to announce that we added another very important Chair in the School of Public Health, namely, a Health Education Training course, with Dr. Lucy S. Morgan, as instructor in this new field. We were fortunate, too, in securing through Dr. Mayhew Derryberry, Chief of Field Activities in Health Education of the U. S. Public Health Service, twenty fellowships for applicants in this field of Education from the W. K. Kellogg Foundation—students entering on these fellowships coming from all parts of the United States.

In July 1942, a joint State-Federal project for the production and evaluation of venereal disease educational materials was sponsored by the U. S. Public Health Service and the Zachary Smith Reynolds Foundation, as an adventure in this specialized field of venereal disease education. The Institute was set up to originate educational materials, to demonstrate them to evaluate their impact—under the direction of Mr. Capus Waynick.

And again, we are proud to announce that there has been established an Academy of Public Health at the State Board of Health. We meet once a month, all personnel are members, and have equal rights. The objective is to review the entire program of the various divisions in order that we may have a general knowledge of the coordinated whole. It acts as a continuous refresher course, and promotes closer fraternalism and a social interest through occasional gatherings for that purpose. The usual attendance is about 125.

Next, I would like to invite your attention to the need of a Mental Hygiene program, so essential in the Department of our "Tree of Public Health."

Is it not a stimulating challenge to use the knowledge we have to lessen the incidence of mental illness? Psychiatry has advanced to the extent that detecting early manifestations that lead to permanent mental disturbance could be prevented or cured if discovered in its incipency. We have devoted, and are devoting, our efforts to the custodial care of the permanently disabled with an ever-increasing

incidence, with little or no effort being made to explore the field of causes and to establish ways and means of reaching our objective through preventive measures, early pre-hospital diagnosis, for it is here we have the greatest chance for arrestment or cure.

Our immediate approach should be to attack the problem by attacking those diseases without psychosis; namely, mental deficiency, alcoholism, drug addiction, personality disorders, psychopathic personalities; and those with psychosis, general paresis, alcoholic, and drug addiction, etc.

DEPARTMENTAL REPORTS

As was mentioned in the beginning, time will not permit my reading these reports.

DIVISION OF PREVENTIVE MEDICINE: Briefly, there have been few changes with the exception of the exigencies of war that made it expedient to discontinue the postgraduate work for the physicians at Duke Medical School and Hospital, teaching in the University of North Carolina School of Public Health for the duration. Transportation difficulties and the scarcity of available physicians to conduct our Maternal and Infancy clinics have been a handicap to progress, but with those available and the services of health officers, the clinics continue to do a great deal of good in teaching the 20,000 pregnant women who are attended by midwives. The effectiveness of this work through the years is shown by the fact that the maternal and infant death rate for 1942 reached the lowest point in the history of North Carolina—the maternal rate dropping to a low of 3.4 as against 4.1 in 1941 per one thousand live births, and the infant death rate to a low of 46.8 as against 59.4 in the previous year.

The most important new work of the division is the acceptance of the U. S. Children's Bureau offer to participate in a plan for extending obstetric and pediatric service to wives and babies of men in certain branches of the armed services.

CRIPPLED CHILDREN: In the locating service of this department, as of December 31, 1942, there were 20,228 on the State Register, an increase of 7 per cent.

There were 308 clinic sessions during the year, at which 9,921 examinations were carried out.

There were 1,419 children under care in hospitals during the year, of whom 1,211 were treated and discharged.

DIVISION OF COUNTY HEALTH WORK: During the present fiscal year the inauguration of whole-time county or district units have been on the march. Five new counties have joined the ranks, making a total of 88 of the one hundred counties in North Carolina, and full-time health service continues in 6 city health departments. To express it in another way, 95 per cent of North Carolina's 3,571,623 inhabitants are now under qualified health organizations.

To partly compensate for our losses to the armed forces, changes have been made in personnel, but the health officers have met this unprecedented situation with a patriotic fervor and are doing a

yeoman's work in assuming added responsibilities, and likewise the same spirit prevails among the engineers, sanitarians, nurses and clerical workers.

We appreciate, and are grateful to the U. S. Public Health Service, for the many competent Service men and women sent to us for the duration on a lend-lease basis. Had it not been for this assistance we would have been seriously handicapped.

The Orientation Course for war emergency public health personnel was held at the State Board of Health at which we secured, for the duration, the services of one health officer, 15 nurses, 6 sanitarians, and 1 follow-up worker.

This division has an enormous and important organization and momentous job, and it is commendable that it has been so successful in maintaining its organization to the extent that it has.

DIVISION OF EPIDEMIOLOGY: In the summary report of this Division you will learn of its many activities and the completeness of its work. Lodged in this Division is the Venereal Disease Control Unit, and there are a total of 309 venereal disease clinics, with 414 clinic sessions held weekly. And, I might add that clinic services are now available to 95 per cent of the State's population. This Division distributed venereal disease drugs to the amount of \$6,508.34 to the private physicians of North Carolina, without charge, physicians submitting records to us.

The Central Tabulating Unit reveals that we received reports of 15,151 new untreated syphilis cases for the year. Private physicians, hospitals and other institutions reported 2,536 new untreated syphilis cases. During this period an average of 24,606 patients per month attended public clinics for treatment or clinical aid for syphilis. We administered 822,769 treatments for syphilis. There were only reported 7,617 new untreated cases of gonorrhea and chancroid. Private physicians, hospitals and other institutions reported 4,141 new untreated cases of gonorrhea.

Due to the war emergency, the Malaria Investigation and Control Unit has changed some of its policies concentrating in its blood slide surveys within the areas around military camps. In this year a total of 23,942 malaria blood slides was taken in 15 counties. In coöperation with the U. S. Public Health Service, the war areas malaria program now has 350 people employed.

STATE LABORATORY OF HYGIENE: You can only gain even a bird's-eye view of your State Laboratory of Hygiene's activities and its immense value to our people by reading the full report.

In our new Laboratory we have been able to perform a greater volume of work than would have been possible without the additional space. During 1942—692,231 examinations were made on specimens sent to the laboratory. In 1941 a comparable number was 575,312.

Serological tests for syphilis still comprise the principal load of the laboratory so far as specimens are concerned. In 1942 there were 613,251 serological tests for syphilis compared with 485,243 in 1941. In 1942 there were 216,066 tests for the Selective Service system and in 1941—57,755 from this source.

It will be interesting to note that tabulations indicate 11.5 per cent of all specimens are reported as giving positive reactions. A break down of this will be found in the Conjoint Report.

During the year 1942 we received 774 animal heads to be examined for rabies. It is of interest to note that during this period we continued to make mouse inoculations and establish the diagnosis of rabies in eight instances where the microscopic examination was negative.

The demands upon the laboratory for typhoid vaccine increased markedly during 1942 when 891,164cc were distributed as compared to 629,767cc in 1941. During the year, there has been a marked trend toward the policy of administering one booster dose of typhoid vaccine each year to those who have previously had a complete course of three doses. It is generally established that the administration of this booster dose will give a uniformly higher degree of protection than the previous method of administering three doses every three years. If practiced, it should decrease the instances of failure of the vaccine and protect and decrease the amount of vaccine which the laboratory would be required to prepare.

It is gratifying to recount that our Improved Pertussis Vaccine is increasing in popularity, although there is not nearly as much of it being used as we feel should be used.

Our Nutrition Laboratory under the direction of Dr. D. F. Milam, has studied 927 specimens of blood from the following sources: Wayne County Survey; National Youth Administration Center, Rocky Mount, and the personnel of the State Board of Health. The following are routine examinations on each specimen: Red Cell Count, Hematocrit, Hemoglobin, Total Protein, Albumin, Carotene, Vitamin C and Vitamin A. Doctor Milam has a very interesting summation of the Wayne County survey in the summary of this Conjoint Report. Look it up!

DIVISION OF VITAL STATISTICS: I only wish I had time to read to you the Division of Vital Statistics' report for it is the bookkeeping of life, and this year's report shows a great improvement in our death rates over previous years. In fact, the death rates in many illnesses are the lowest in our history.

The death rate from all causes was the lowest, 8.1 per 1,000 population, for any year since the beginning of registration in 1913.

There were 90,056 births reported in 1942. These out-numbered the 29,613 deaths recorded by 70,443. This represents the greatest natural increase ever shown during any year.

In addition to registering the regular birth and death certificates, over 75,000 delayed certificates of birth were filed with the Division in 1942.

DIVISION OF SANITARY ENGINEERING: The promotional work of this Division has been quite successful and in its report it accounts for 20 new water systems and plants; 14 new sewerage systems, and 12 new sewage treatment plants. Naturally, for the sake of brevity only, I am leaving the report to be studied at a later date, more in detail.

It will be of interest to note that in connection with the Ten Point Program for Emergency Preparedness for Water Works, surveys have

been conducted in 103 North Carolina cities and towns, resulting in many precautionary measures being instituted for the better protection of our public water supplies against sabotage and air raids.

The rapid expansion of military bases in North Carolina during the past year has greatly increased our supply of milk and sanitary needs. Every effort has been made and committees appointed to co-operate with the military authorities, the State Department of Agriculture and local health departments in matters pertaining to the situation, and we hope that a satisfactory adjustment can be made in the early future.

DIVISION OF ORAL HYGIENE: The progressive policies of our dental program in emphasizing the importance of the educational measures introduced in the schools by the dentists who have had special training and the corrections made among the indigent, and the referrals of those who are able to pay to the private dentists, demonstrates beyond a shadow of a doubt that correlation and co-ordination of such activities will serve to the best advantage of the whole people and stimulates, rather than retards, dental service on its present high standard, and promotes its continued growth, fosters and stimulates individual attainments as recognized by the compensation to the dentists commensurate with its importance.

Reports show that through March of this school year 42,433 underprivileged children had the necessary dental corrections made for them by the school dentists and that an even greater number of privileged children were referred to dentists in private practice. In addition to the corrective work, the school dentists have taught mouth health to approximately 100,000 children in their own classrooms and have distributed to the teachers many thousands of sheets of the mouth health education material prepared by the educational consultant on the staff.

During an average month 5,000 children received dental corrections and it was necessary to extract only 200 six year molars. This presents very convincing evidence of the effectiveness of our efforts in mouth health education. During this same month the dentists filled 1,600 six year molars. Had it not been for this service provided for the underprivileged, these teeth, in all probability, would have been neglected and eventually lost. This should be gratifying to us all.

DIVISION OF INDUSTRIAL HYGIENE: The war has forcefully brought to the forefront the importance and value of industrial hygiene for the protection of the health of the employee and the prevention of man hours lost. Industries are constantly increasing their request for the examination of their employees. To illustrate: The Durham Health Department requested us to make a tuberculosis survey in some of the leading industries of the City of Durham. Of the 9,000 employees examined in the initial study, our records show that 186 cases of tuberculosis were found. Approximately half of this number appeared to be active from the X-ray standpoint. A goodly number of the remaining half were thought to be suspicious of active disease, and were referred to local physicians. Approximately 60 per cent of these cases were in the minimum stage.

The ever increasing demand for mica and other strategic minerals made necessary the examination of large numbers of men for this industry. More than a thousand were examined on a single visit.

Dust counts are being made and working environments evaluated as rapidly as possible with the men and equipment at hand. All employees examined and found to be suffering with silicosis, asbestosis, or other diseases are referred to their private physicians for care and attention. To give you an insight as to the extent of this work, examinations—clinical and X-rays in 1934-'36 were 567; in 1940-'42, there were 5,028. Blood specimens collected for serological tests in 1936-'38 were 3,100; in 1940-'42 there were 5,800 such tests.

NUTRITION SERVICE OF THE STATE BOARD OF HEALTH: The problem of nutrition is a very broad one. It involves production, conservation, storage, transportation, distribution, preparation, education, economics, and medical and public health considerations. As such the problem cannot be solved by one agency working alone. Realizing this, the State Nutrition Committee, which I told you about last spring, has organized sub-committees to conduct State-wide co-ordinated activities as follows:

1. Publicity and information.
2. Food production.
3. Food conservation and utilization.
4. Public health and clinical nutrition services.
5. Education in nutrition through the regular school program, through the school lunch program and for adults.
6. Nutrition services for industrial groups.

The State Committee has sponsored the organization of nutrition committees in every county, with sub-committees identical with those named above for the State Committee. To date such committees have been organized in 89 of our 100 counties.

I have succeeded in securing funds to establish a nutrition service in our State Board of Health. So, within a reasonable period of time, I hope to be able to report to you that we have established a nutrition division, similar in every respect to the other divisions of our State Health Department.

SCHOOL-HEALTH COORDINATING SERVICE: As you know the School Health Coördinating Service had its beginning in 1939. In last year's report a statement was made concerning the purpose of the work, the coöperating agencies concerned, and the plan of procedure which has been followed. Through the collaboration of the Department of Public Instruction and the Department of Public Health in carrying out school health work, it is obvious and requires no argument as to its value. The attempt of these two groups to work together in North Carolina is unique and bids fair to bring success. Acknowledgment is hereby made to the Rockefeller Foundation and to the General Education Board for generous financial aid and other support in this project.

In one county in-service teacher training in health instruction and physical education was given in 16 high schools and in 37 elemen-

tary schools. Every high school in the county set up a required program in health and physical education, consisting of three periods a week in physical education and two periods a week in health education. The subjects included nutrition, first aid, prevention of communicable diseases, personal hygiene and safety.

Summer Teacher-Training Conferences: During the months of June, July and August, this service coöperated with four institutions in conducting Teacher Training classes and Child Health Conferences. The institutions were the Woman's College of the University of North Carolina at Greensboro, the University of North Carolina, Chapel Hill, and North Carolina College for Negroes at Durham and Bennett College for Negroes at Greensboro. The objectives included methods of teaching health, sources of materials for teaching health, health problems of children, an interpretation of school and community health problems, and an integration of academic subjects with the child health program. At four child health camps about 120 underprivileged children were studied and received three well-balanced meals daily, medical care, dental care and proper supervision.

A similar program has been carried out in the Negro schools of Durham by Negro members of the staff directed by our Dr. Walter J. Hughes. During the period of September, October, November and December 126 teachers, 1,440 elementary school children, and 280 high school students were given physical examinations. The teachers and the high school students were given Wasserman tests and Tuberculin tests.

The scope of work which has been undertaken includes the giving of information to teachers in regard to screening out the children with physical defects. Emphasis has been made to the teachers that they should know the advantages of the home life of the children under their care; the inspection of the buildings, and grounds in respect to environmental sanitary facilities and requirements. It is obvious from these statements that the teacher occupies a key position in this field of activity.

PUBLIC HEALTH PUBLICITY: The need for a Publicity Specialist in the State Board of Health can only be appreciated when a review is made of our Scrap Book, to which approximately 150 pages of clippings have been added during the past year. This specialist conducts the Board's weekly broadcast over Station WPTF, and answers various inquiries regarding research.

The newspapers of the State continue to give the Board of Health their full support, and the same is true of the news gathering associations, including the Associated Press and the United Press. Altogether the publicity work of the Board has been greatly accelerated during the past year, with definite objectives and of beneficial results.

Respectfully submitted,
CARL V. REYNOLDS, M.D.,
Secretary and State Health Officer.

(For synopsis of departmental reports see *The Health Bulletin*, issue of July, 1943.)

ANNUAL REPORT NORTH CAROLINA STATE
BOARD OF HEALTH
To
CONJOINT SESSION STATE MEDICAL SOCIETY

CARL V. REYNOLDS, M.D.
Secretary and State Health Officer
Pinehurst, North Carolina
May 2, 1944

Once more it is my purpose to veer from the time-honored custom of reviewing, in detail, the activities of your State Health Department. The scope of these is so voluminous that time will not permit. I have here, however, a brief resume of the accomplishments of the various divisions, namely, Preventive Medicine, County Health Work, Epidemiology, Venereal Disease Education Institute, The Reynolds Research Laboratory, Field Epidemiological Study of Syphilis, State Laboratory of Hygiene, Sanitary Engineering, Oral Hygiene, Industrial Hygiene, Nutrition Service of State Board of Health, North Carolina Nutrition Study, School-Health Coördinating Service, Vital Statistics and the Publicity Activities. May I invite you to read it carefully when it appears in printed form during the year?

Rather than burden you with material which will be available to you for study at your leisure, it is my purpose to use this time to present a phase of it that should kindle within us a desire to avoid any longer a negative acquiescence, a positive opposition, or a lethargic attitude toward any change in our present system of medical care. Opposition to any change in the fundamental basis of the present administration of medical care only hastens the day when we will have foisted upon us an administration which will be seriously objectionable, if not inimical to the interests of both ourselves and the public we are endeavoring to serve. It will, when this already has come about, be too late for us to make the free choice which is still ours.

Whether we like it or not, humanity is on the move, both physically and intellectually, and it usually gets what it wants. We must not blind our eyes to the fact that this is a realistic age and that the medical profession faces a golden opportunity for real leadership which it can ill-afford to lose.

There are lay groups which are adamant in their insistence that measures for improvement be taken; and this brings the members of our profession face to face with the stern realization that unless we act, they will. This means we will have superimposed upon us ill-advised schemes to which we could never subscribe, and the soundness of which would, to say the least, be highly questionable.

It is my prerogative to speak as a physician, not as a layman in this matter—as one who is sympathetic with our problems, and not as a critic.

Admittedly, there is a high quality of medical care available to the American people, but its recourse is hindered by this problem, which we must face and solve: How can this care be made available and accessible to all who need it, more especially in our great rural areas? We should make this problem our concern, as much as it now appears to be the concern of the laity, which seems determined that it shall be solved and that without further delay. The measure of our success, then, will depend not only upon our sincerity of purpose, but upon our ability to grapple with an admittedly difficult problem.

Let us review for a moment. A five-year survey of the cost of medical care—May 17, 1927 to May 29, 1932—showed the great need for group organization for medical care, on a group basis, and its extension to the entire population, according to its varying needs. But nothing was done about it.

I believe that the public is not so much concerned about the means as it is about the undisputed ends in this matter. This, I think, should be encouraging, for it does not denote a loss of confidence in the profession by the public, but an insistence that it assume the role of leadership.

We must either lead, which we are capable of doing, or be carried away with the flood, which could only spell disaster. We have received the challenge, and we must meet it. The gauntlet has been thrown down; we must take it up!

I am more convinced of this than ever, since returning from Chicago, where I attended a conference on medical care and health services for our rural people, the purpose of which was to consider ways and means by which the rural population may obtain more adequate medical care and health services and share more fully in the benefits of modern medical science. In attendance upon the conference were delegates representing farm and rural organizations, medical men and technical specialists from twenty states, the District of Columbia and Canada; also representatives from the American Medical Association, Labor, the United States Senate Committee on Education and Labor, Agriculture, the United States Public Health Service and liaison consultants.

I came away from Chicago more convinced than ever that sympathetic medical guidance is of paramount importance, and that it is up to organized medicine to come forward with a definite plan, at an early date—a plan that *will work*, otherwise, we will find ourselves knocking at the door, only to receive the stern answer: "You cannot enter now!"

The basis for any sound plan, in my judgment, is not federalized medicine; neither is it socialized medicine, in the commonly accepted sense of that term—but supplemental medicine, which already has become an accomplished fact and has played a conspicuous part in the progress we have made, even though we have only scratched the surface.

In substantiation of my claim that the solution must come through an expanded system of supplemental medicine, rather than regimentation, I need but to call your attention to the record of Federal assist-

ance to the states for the single fiscal year of 1944. Such assistance amounts to the almost unbelievable sum of \$262,145,260, divided as follows: Title VI (Social Security), \$11,000,000; Venereal Disease Control, \$10,276,200; Maternal and Child Health, \$5,820,000; Crippled Children, \$3,870,000; Emergency Maternal and Infant Care, \$23,000,000; Emergency Health Sanitary Activities (general), \$2,983,376; Malaria Control, \$7,649,314; Industrial Hygiene, \$546,310; projects approved covering construction and maintenance of health centers, hospitals, rapid treatment centers and nurses' homes, \$75,000,000; construction of sanitary facilities, \$122,000,000.

Numerous other benefits accruing from supplemental medicine might be cited. The number of venereal disease clinics in the United States increased from 3,245 to 3,569, approximately 10 per cent. Sero-logic tests for syphilis totaled 20,500,000 and arsenical drugs for the treatment of syphilis distributed by the State Health Departments continued to increase; a total of 8,727,964 doses of arsenicals was distributed to clinics and private physicians. This was an increase of nearly 7 per cent.

The above are national figures, but let us see just how North Carolina fared in the distribution of federal assistance for supplemental medicine. From Title VI this fiscal year we are receiving through the State Health Department, the sum of \$436,985. The amount allotted us for venereal disease control is \$463,923; for maternal and child health \$238,971; crippled children, \$117,229 and for industrial hygiene, \$16,378. And here is a figure that will amaze you: So far this year there has been channeled through the North Carolina State Board of Health the staggering sum of \$652,428 for Emergency Maternal and Infant Care, that is, for pre-natal obstetrical and post partum care of soldiers' wives giving birth to children and for hospitalization of wives and babies up to twelve months old. Would you call this "regimentation"? Well, hardly, when the money is paid directly into the pockets of North Carolina doctors and to North Carolina hospitals. The same is true of other funds channeled through the State Board of Health. In this procedure of supplemental medicine, where is there any socialized medicine? Where is there any State medicine? And if it can be done in North Carolina with the proper guidance, it can be done in every state in this American Union, not to the detriment of the medical profession, but to the merited benefit of the profession, which is the only source through which this money can pass and gain the objectives for which it was appropriated and allotted.

As one more example of supplemental medicine, as it is shared by North Carolina, I would point out the crippled children's program for which, as I have said, we are receiving this year \$117,229. This program was established by the State Board of Health under a policy approved by our best orthopaedic surgeons, who are employed to execute it, the money going to them and to hospitals through the State Board of Health, to which it is allotted by Washington, and serves as a financial supplement. It would certainly not be spent otherwise, and no financial benefit would accrue to anyone.

It is well to bear in mind that supplemental medicine means just what the term implies—addition, not subtraction. Instead of depriving physicians of income, it adds to their income, and rightly so.

In bringing about changes and equalizing the distribution of medical care and hospitalization, so as to bring these within the reach of all, it will be necessary to change some of the methods we heretofore have employed, but not personnel, as any successful program must of necessity be carried out under the supervision of the medical mind.

Organized medicine has no desire to become a pressure group; neither should it sit idly by and, itself, become the victim of any pressure group. It can avoid this by taking the initiative, by assuming the leadership that rightly belongs to it. It must lead in the march of progress, rather than bring up the rear or be left out altogether.

That, I think, is what Governor Broughton had in mind when he, with the assistance of the medical mind, evolved his plan to see to it that "no person in North Carolina shall lack hospital care or medical treatment by reason of poverty or low income." This plan, if it succeeds, must be carried forward intelligently, conscientiously and concertedly; and we, as a profession, can do much toward furnishing the necessary leadership, with "Service Before Self" emblazoned across our banner as we move forward.

Approval of the Broughton plan, to which we should all subscribe as something definite and concrete and as a working basis for future advancement, is, I am glad to note, the rule rather than the exception.

The Broughton plan, therefore, will bear re-emphasis at this time. It provides, briefly, that:

1. The present two-year medical school at the University be enlarged so as to provide a full four-year course. Two other medical schools in the State—Duke University and the Bowman Gray School of Wake Forest College at Winston-Salem already are on a four-year basis, and doing magnificent work; but it is obvious from a study of figures that these schools do not begin to supply and can never supply the full requirements for physicians to serve adequately the civilian population of North Carolina.

2. That an adequate hospital be erected at the University of North Carolina, with a capacity of not less than 600 and preferably 1,000 beds, which in conjunction with the Medical School and the hospital facilities already available at the University shall constitute a State hospital center; that such hospital shall be built by State funds, supplemented by such Federal, private, and foundation funds as may be available, and shall be open to patients from all sections of the State, with provisions for free hospital and medical service to all such patients as may be unable to pay for same; that the various counties of the State be encouraged to set up appropriations to provide a substantial portion of the cost of patients who may be sent to such hospital from such county, such funds to be supplemented by funds that may be available from the Duke Foundation or other foundations now in existence or hereafter created for such purpose.

3. That since it is obvious that one hospital center could not begin to serve the State under this sort of program, that other, though smaller, hospitals to serve as local centers be established in strategic regions of the State for hospitalization of those in need of medical care without means to provide that care. It is possible that some of the Army or Navy hospitals that have been built in the State in connection with military and naval installations, or otherwise, may be available in connection with this program.

Governor Broughton's program would carry into some of the smaller counties well-equipped hospitals which would attract the best element of professional service and encourage doctors to leave the centers and work among the approximately 73 per cent of our population who live in rural communities and towns with less than 2,500 population. Would this not be a grand contribution to humanity in its over all aspect!

Would that other states might join with the Old North State in leading the entire nation in carrying out this magnificent program of such features as do not now exist in our Sister States to the north and to the south.

With such a program in effect, we could not any longer bemoan the fact that:

"Man's inhumanity to man
Makes countless thousands mourn."

Respectfully submitted,

CARL V. REYNOLDS, M.D.,
State Health Officer.

(For synopsis of departmental reports see *The Health Bulletin*, issue of July, 1944.)

DIVISION OF PREVENTIVE MEDICINE

The personnel at the close of the period, June 30, 1944, was composed of one medical director, one pediatric consultant, the State supervisor for the crippled children's department having resigned in November 1943, that place was still vacant at the close of the fiscal year, one consultant nurse for the crippled children's department, one consultant nurse for the maternity and infancy department, three nutritionists, five specially trained staff nurses, three having resigned before the close of the fiscal year and their places not filled at that time, five were occupied with duties with the School Health Coördinating Service, a coöperative enterprise with the International Health Board and the State Department of Public Instruction, the other three staff nurses were occupied with midwife control work and one of them in the work of aid for the hard of hearing school children. The clerical personnel consisted of four senior stenographers, one junior stenographer, one typist clerk, one junior general clerk, four senior general clerks. The accounting department is headed by one senior accountant and one junior accountant. One multilith operator in charge of the special printing department and one senior addressograph operator.

In addition, funds were provided through this department for the employment of a varying number of war emergency nurses to aid in county work and for special clerical help in the budget office and in the Laboratory.

Broadly speaking, the work of this division during the biennium covered the following activities: participation in the department of school health supervision with the School Coördinating Service, health education, maternal and child health services, crippled children's service, midwife control work in the unorganized counties. Another responsibility of this division is the handling of medical correspondence, or strictly speaking, the personal health service of the Board. The director of the division is also Assistant State Health Officer by election of the State Board of Health.

Finally, during the biennium, the heaviest responsibility carried by the department which overshadowed all other activities was the administration of the Emergency Maternity and Infant Care program provided for by Act of Congress and nationally administered by the U. S. Children's Bureau. This has been one of the most difficult programs this department ever undertook. It has been widespread and covers the entire State. The program provides for maternity care for all women whose husbands are in the 4th, 5th, 6th and 7th pay grades of the armed services. It also provides for medical and hospital and nursing care for the infants of those classes of soldiers during the first year of life.

A brief resume of the activities of the department under the proper subheads follows:

Emergency Maternity and Infant Care Program: This service was inaugurated on the first of September, 1942. It was done on the agreement of the U. S. Children's Bureau to provide limited funds for beginning such work. It was more or less in the nature of an experiment yielding to widespread demands in the armed service and throughout the civilian population for some provision for the wives and infants of the lower paid members of the armed services. On the 18th day of March, 1943, Congress passed an enabling act carrying an appropriation for all the States, which was provided through the U. S. Children's Bureau, which was named the administrative branch of the U. S. Government to administer the funds. From that time to the end of the period, the demands arising from all over the State in the administration of this service were almost overwhelming. The federal government demanded advance authorization before care could be given to these patients, no retroactive payments were allowed except in extraordinary situations. Fees had to be agreed upon which were permissive by the federal regulations and a ceiling placed on the compensation allowed to physicians and to hospitals. The plan adopted by the federal government was to make payments direct to hospitals and physicians only, no reimbursement to patients who had previously paid the bills was allowed.

In April, 1943, a committee representing the medical profession in North Carolina was appointed to meet here in Raleigh for the purpose

of passing on the general provisions of the Act and for setting up rules and regulations to be followed in this State, including the fees that were to be recommended. This group represented practicing physicians, specialists in obstetrics and pediatrics and surgeons representing the larger hospitals, as well as the small. After careful deliberation, a system of fees and other regulations was adopted by unanimous consent. This was submitted to the Children's Bureau, a part of which was sustained and a part of it vetoed. The recommendations for surgical fees were considerably cut down but the recommendations for general obstetric care which at that time called for the ceiling compensation allowed by the Children's Bureau, was accepted. After much effort, the Children's Bureau accepted the committee's recommendation on pediatric care only in part.

Following this meeting, early in July a committee of hospital managers representing all sizes of hospitals in North Carolina was appointed and met here in Raleigh for the purpose of setting up rules and regulations and establishing the rate of pay within the limits allowed by the Children's Bureau for per diem compensation to hospitals. This committee after prolonged deliberation unanimously agreed on the cost analysis basis for compensation to be paid to the hospitals. The cost analysis was to cover all of the general activities concerned with first class ward care. The Children's Bureau allowed very few special fees. In the cost analysis submitted by a hospital, such matters as X-ray, laboratory work, delivery room fees, etc., were included in the cost statement and therefore no extra fees were allowed. By the end of the biennium, about 110 hospitals, including a few small clinics operated by private physicians, were accepted as participants in the plan. These hospitals represented every section of the State with the exception of the three extreme western counties and the section around Elizabeth City in the northeast part of the State. Two or three other sections were only meagerly represented, but it may be said that about ninety per cent of the State, according to population, was properly covered by participating hospitals. Among the restrictions in the plan as required by the Children's Bureau, patients' hospital care could not be paid for except in a participating hospital which had applied for admission and submitted its cost breakdown.

The administration of the plan has required an immense amount of personal correspondence. Every effort was made to give prompt attention to every individual inquiry and to make adjustments when possible under the federal regulations. The fees paid to physicians represented the maximum ever charged by physicians for such services in about eighty-five of the State's one hundred counties. On the whole, the average pay to the average physician for the average maternity case represented a little better pay than he had ever charged before for similar service. There have been some petty restrictions in the program imposed by the federal government which have been irksome to the department and to the physicians alike, but for the most part, an honest effort has been made on everybody's part to give these women the service they were entitled to and to give it as cheerfully as possible. Most of the hospital management lived up to their

obligations in the contract and a large percentage of the physicians did likewise. It will be interesting to note some of the statistics available at the time this report is written covering the period under consideration. These facts are herewith set forth, covering the period from April 1, 1943, through June 30, 1944.

	<i>Maternity</i>	<i>Infant</i>
Cases for which services were authorized	14,289	561
Cases completed	5,737	145
Amount paid for services (maternity and infant) \$433,101.95.		

Special Services: During the period, it became necessary to terminate at least temporarily three special demonstration efforts representing three different sections of the State. Reference is made to the special demonstration work in Northampton County in the field of maternity and infancy care, the special work in the Person County district and in Polk County in the west. It became necessary to terminate this service in all three areas because of a lack of a sufficient number of competent nurses to carry on any further and a lack in the Polk area at least of sufficient number of physicians to coöperate with the service satisfactorily. The most successful of these enterprises was that in Northampton County. It concluded a five year effort by which midwives were carefully supervised, prenatal examinations and care was provided by physicians or specially trained nurses for every maternity case in the county. Prenatal clinics were attended not only by the expectant mothers but by midwives and others at regular intervals throughout the county. The services of physicians was provided and hospitalization across the county line was also provided for any maternity case needing such service. The nurses themselves delivered many of the women. This work was under the direction of the local health officer who coöperated superbly with this department. That work represents such an outstanding and successful experiment that it will be fully written up and published elsewhere. It is sufficient to mention that a very high maternal death rate was practically eliminated also with seventy-two per cent of the population of the County Negroes, an infant death rate for several years prior to the inauguration of the program much higher than the State average and almost twice as high as the national average was brought down to a point much below the national average and many points below the State average in infant deaths. It was the most outstanding experiment undertaken in this State in this field and should provide a guide for future efforts along this line. The Polk and Person efforts never got underway to the extent that was achieved in Northampton but much good was accomplished in both counties under great difficulties.

Hearing Conservation Program: One of the State nurses continued to use the audiometer and other measures in carrying on a hearing conservation program which was begun back in 1937. This work was carried on in several counties and demands for its extension are far above the ability of the department to aid, but it is sufficient to say

that this work being done in coöperation with the local health program aroused much interest on the part of the public most concerned for doing something to aid this large group of children heretofore neglected.

Personal Health Service: An important service of this division is that rendered through personal correspondence. Thousands of people, many of whom are distressed in mind or body, write to the State Board of Health for information, help or advice on almost every conceivable question relating to health in the field of medicine. Naturally, not all such questions can be answered, but even then no letter or communication is disregarded and every writer signing his name and giving correct address gets a reply. The value of this friendly personal service to a large group of inquiring and anxious people is inestimable, and at the same time it is no little item in the regular day's work.

Health Education: The work of health education in the North Carolina State Board of Health during this biennium was distributed among many agencies, to note only a few, the School Health Coördinating Service, the work in the nutrition field, the installation at the University of North Carolina of a course of instruction for health educators who later become workers in the local units, and last but not least, the Venereal Disease Education Institute. The latter comprises one of the largest and most exhaustive departments of its kind in the United States and has been largely financed by funds provided by the Reynolds Foundation and the U. S. Public Health Service. Full reports of the activities of the departments just mentioned will of course be made under the proper heading by the directors of those divisions. It is mentioned here simply to indicate the expansion in the field of health education. Strictly speaking, this department which has for some twenty years been concerned with health education as one of its principal functions has been responsible for the distribution of the *Health Bulletin*, edited in another division but distributed by the mailing division of the State Board of Health, a responsibility of this division and in the distribution of specially prepared literature in the form of pamphlets, leaflets, booklets and special forms of literature. No phase of health work is more important than health education. Only as the rank and file of people know and understand the principles and methods of disease prevention will there be any great progress of a permanent nature made in saving lives, cutting down sickness and making life safer for all the people. Reaching the people who most need health instruction is our greatest problem. There are still many thousands of people in this State who are not able to read and write. There are still families who do not listen to a radio. An effort has always been made in this department to get understandable literature into the hands of such people in as simple understandable method as possible. Efforts are also made to get direct contact with these people through field nurses, the work of physicians in the maternity and infancy clinics and in every other manner in which such information may be disseminated. *The Health Bulletin* which is now in its sixtieth year continues to be the mainstay of the State Board of Health in get-

ting information into the hands of the largest number of people in the most satisfactory manner possible. The following table may serve to emphasize the large volume of work done in this respect:

Literature distributed.....	3,803,124
Monthly Health Bulletin.....	1,440,000
New names added to mailing list.....	3,321
Names taken off mailing list.....	4,247
Addresses changed.....	207
Morbidity reports.....	105
Envelopes addressed for Morbidity reports.....	1,486
Multigraph pages.....	215
Multigraph lines.....	2,530
Multigraph copies.....	397,842
Mimeograph pages.....	4,130
Mimeograph copies.....	1,548,230
Press articles.....	36
Envelopes addressed articles.....	9,133
Envelopes addressed for:	
Central Administration.....	1,762
Preventive Medicine.....	317
Engineering.....	777
Epidemiology.....	9,521
County Health Work.....	2,904
Coördinating Unit.....	66
Tabulating Unit.....	2,679
Laboratory of Hygiene.....	100
Radio talks.....	99
Envelopes addressed for radio talks.....	7,498

Established Maternal and Child Health Service: The U. S. Children's Bureau continued to provide funds for field work in this department during the entire biennium. The fundamental part of the service has been maintained for more than twenty years and the work during the biennium was no different from what it has been doing the previous years with the exception that with Children's Bureau funds the service has been expanded and extended in every direction. During the biennium an increasing scarcity of physicians and competent nurses attached to city and county health departments had curtailed the activity to some extent. Not quite as many clinics were held during the period as in the previous biennium but the standard has been maintained and in many places improved through continued efforts of interested health officers, supervising and senior nurses and interested and loyal practicing physicians who have become a regular part of the service. A detailed report of the activities of maternity and infancy clinics follows:

Maternity and Infancy Clinics—July 1942-June 1944.

Counties: Alleghany-Ashe-Watauga, Anson-Montgomery, Beaufort, Bertie-Chowan-Gates, Bladen, Cabarrus, Carteret, Catawba-Lincoln, Cherokee-Clay-Graham, Cleveland, Columbus, Craven, Cumberland,

Currituck-Dare, Duplin, Durham, Edgecombe-Halifax, Forsyth- Stokes-Yadkin-Davie, Franklin, Gaston, Granville, Greene, Harnett, Haywood-Macon, Hyde-Tyrrell-Washington, Johnston, Lenoir, Martin, Moore, Nash, New Hanover, Northampton-Hertford, Onslow-Pender, Orange-Person-Chatham, Pasquotank-Perquimans, Pitt, Robeson, Rowan, Rutherford-Polk, Sampson, Scotland, Surry, Union, Vance, Wake, Wayne, Wilson.

Cities: Asheville, Greensboro, High Point, Rocky Mount.

No. clinics held, 5,344, No. physicians participating, 200.

<i>Parental Service</i>	<i>White</i>	<i>Colored</i>	<i>Indian</i>
New patients.....	2,839	19,386	155
Old patients.....	5,561	30,973	112

Period of Pregnancy at time of visit:

1st Month	251	5th Month	7,883
2nd Month	1,355	6th Month	9,710
3rd Month	3,092	7th Month	10,818
4th Month	5,249	8th Month	9,863
9th Month	4,608		
Wassermanns taken	2,763	18,075	140
Reported Positive	28	1,781	6
Reported Negative	2,513	14,921	113
Patients indicating presence of toxemic condition	374	1,829	7
Positive Wassermann cases reporting institution for anti-syphilis treatment.....	108	2,990	1

Delivery Service

Patients assisted in securing necessary medical attention at delivery.....	1,079	1,125	3
Patients found necessary to hospitalize for delivery	515	721	5

Postpartum Service

Examined by physician.....	1,208	4,822	18
Discharged in Normal condition.....	856	4,134	12
Referred for Medical or surgical treatment..	264	481	7
Women reporting successful delivery of living healthy child.....	1,758	9,777	283
Women reporting stillbirths.....	40	294	
Women reporting death of child at delivery or during first month.....	37	259	7

Infant and Preschool Hygiene Service

Brought to center for medical examination:

New—Infant	5,396	15,323	38
Preschool	4,178	4,601	5
Old—infant.....	7,372	17,034	22
Preschool	2,936	6,714	

Normal in weight and nutrition:		White	Colored	Indian
Infant		9,991	25,876	48
Preschool		5,270	8,528	
Underweight for age and having malnutrition:				
Infant		1,014	2,838	6
Preschool		676	920	
Referred for treatment:		Infant	Preschool	
	Medical	1,493	432	
	Surgical	44	384	
	Dental	428	466	
	Ocular	26	64	
Given preventive treatment against Smallpox:				
Infant.....		415	1,844	43
Preschool		3,205	1,638	22
Diphtheria:				
Infant.....		3,919	9,494	99
Preschool		3,533	4,306	78
Whooping Cough:				
Infant		1,055	1,868	
Preschool		473	818	
Number reported having had:				
	Measles	982		
	Whooping Cough	570		
	Mumps	42		
	Diphtheria	46		
	Scarlet Fever	68		
	Diarrhea	469		

Estimated number of pieces of literature distributed in centers 108,740.

The division supplied free toxoid and whooping cough vaccine for the immunization of babies during the two-year period. This was supplied to health officers and the physicians throughout the State.

During this biennium, exhaustive efforts were continued in all of the counties not having a whole-time health officer and in a majority of the counties with organized health departments to see and examine every midwife at work in the State. A total of 117 midwife meetings were held, 577 home visits were made, and 282 permits were given to midwives.

A complete system of mailing literature and supplies in the field of Maternal and Child Health has been maintained by this division. During the biennium a total of 34,661 letters giving information to expectant mothers have been mailed out. These letters are sent directly to the mothers only at the request of the mother herself, the midwife or the physician, or some intimate friend. An excellent book known as Prenatal Care was sent to 31,636 expectant mothers. Thousands of pieces of special literature such as Daily Time Cards and Diet Lists giving instructions for feeding babies and information on special

subjects such as infantile diarrhea, etc., were sent out. Another excellent book known as *Infant Care* was sent to 37,771 families having infants who requested this literature. In compliance with the State law requiring the Board of Health to supply silver nitrate prophylactic drops to physicians, hospitals and midwives on request, a total of 26,195 packages were sent out. Each package had sufficient prophylactic drops for use in the eyes of five newborn babies.

CRIPPLED CHILDREN'S DEPARTMENT

This Department has suffered during this two-year-period on account of the limited number of workers engaged in carrying on the program. Provision has been made in the budget, insisted upon by the United State's Children's Bureau which provides the money for this program, and approved in the budget when submitted to the Children's Bureau for the addition of a medical social worker, an additional nurse and an additional physical therapist. None of these three workers was secured during this period. To add to the forgoing deficiency of personnel, the active administrator of the program resigned about the middle of November 1943 and up to June 30, the end of the period, his place had not been filled. Following his resignation, the two women employed in the office who were responsible for the clerical work also left the service for other work soon after the administrator departed. This precipitated something of a crisis in the office. The Director of the Division of Preventive Medicine was overwhelmed with regular duties of his Department to which were added during the biennium the administration of the Emergency Maternity and Infant Care Program, launched late in 1942 and expanded early in 1943 by an act of Congress which provided medical, hospital and nursing care for the wives and babies of all servicemen of the four lower pay grades. Notwithstanding the difficulties multiplied by a scarcity of help throughout the State in the way of interested health officers and competent nurses as well as a deficiency in the number of physicians, the work was carried on to a successful conclusion at the end of the biennium. The Department was fortunate in obtaining the services of two competent employees to take the places of the two who left and as the period closed, much work had been done in revising and completing considerable left-over work. Arrangements were made with the hospitals of the State participating in this plan for cost analysis of their operating expenses. The hospitals were paid according to their own sworn statement of operating expenses, the per diem for each hospital being set up by itself. This has been a most satisfactory arrangement although it has necessitated an increase in the cost of hospitalization of these patients. All of the hospitals collect the one dollar per day for each one of these patients allowed by the Duke Foundation which has been of great help in extending the service to more crippled children than would otherwise have been possible. The local welfare departments throughout the State continue to give their support for the most part to this service. A meeting of all the orthopedists coöperating in the plan was held the latter part of February

and several questions bothering the administrators of this program as well as the orthopedists were amicably arranged. This program is carried on, for the most part, with money allotted by the United States Children's Bureau to pay for the service. As just stated, the Duke Foundation one dollar per day per patient supplements this fund to a considerable extent.

The aid of voluntary agencies of the State, such as the League for Crippled Children (which obtains its funds through the sale of Easter seals once a year, about April) and the National Infantile Paralysis Foundation (which held its most successful State-wide campaigns for funds early in the year) together with some of the local welfare departments and many other organizations such as the luncheon clubs have served to supplement the Children's Bureau funds. Therefore, the benefits have reached a greatly increased number of children.

The essential features of the North Carolina plan have not been changed much during the biennium from that which prevailed during the past eight years. During the latter part of the biennium, owing to the increased demand on the services of orthopedists and local agencies assisting in the program, the remaining workers in the Department and the remaining orthopedists conducting the clinics and doing the follow-up treatment have had many more demands made on their time. All of this extra service has been cheerfully given.

Although statistical information on the service of other agencies coöperating in this program could not be included here, it is well to mention something of the contribution made to the cause by these agencies. First and foremost may be mentioned the North Carolina Orthopedic Hospital. When this program was inaugurated in 1936, the management and trustees of this hospital cheerfully agreed for their operational activities to provide for the matching of Federal funds in order to maintain this Department. That hospital has capacity for 160 children; 50 of the beds are devoted to Negro children. Most of the time the hospital operates to full capacity. It is an excellently managed institution and although the age limit under which it takes patients is 16 years, the careful manner in which the patients are selected enables the hospital to extend its resources in a most satisfactory manner. Just here is a proper place to mention the fact that if another hospital of this type could be located in the eastern part of the State of the same capacity, the work could be doubled and transportation facilities could be greatly reduced. Such an additional hospital could be operated under the same management on the pattern of the State hospitals for tuberculosis and therefore the overhead expenses could be greatly reduced. There is always a long waiting list of applicants who need to be admitted to the hospital but for want of room cannot be admitted. Mention has already been made of the North Carolina League for Crippled Children. The Director of this League has been most helpful in securing aid for many children in sections of the State where their organization functions and where the local committees have the money. Their support is much appreciated by this Department. The National Foundation for Infantile Paralysis is one of the wide-spread organizations, possibly having

committees in more counties in the State than any other voluntary organization. This foundation is represented in North Carolina by an efficient state department. Near the close of the biennium under consideration, when a severe outbreak of infantile paralysis occurred especially in the piedmont area of North Carolina, the foundation immediately assumed financial responsibility as well as directional service in caring for the victims. As this outbreak occurred so near the close of the biennium and as it is a complete story, scientifically and socially speaking, further mention will not be made here. The history of the outbreak will be fully recorded in an appropriate manner by other agencies. This foundation, through its local committees, has assisted this Department in caring for many chronic cases among the children of the State when called upon by the Director of this Department. One of the most coöperative and efficiently conducted agencies in the State is the Asheville Orthopedic Home. Superb care is provided there for a maximum of 25 crippled children. It is a well-managed institution and the cost of maintenance in the home is less to this Department for its convalescent patients than in any other hospital in the State with one or two exceptions. The Asheville Orthopedic Home needs to be expanded with additional room and facilities provided in order to care for more patients. Naturally the income would have to be increased from some source before this could be done. Incidentally, a similar home is badly needed somewhere in the State east of Durham. One of the needs for the satisfactory administration of the Department is for additional hospital facilities in certain sections of the State now without the service of a qualified orthopedic surgeon. It is to be hoped that in the near future the expansion of the service along this line may be achieved.

An increasing number of local county health departments with their efficient nursing service and all county welfare departments with their increasing number of trained case workers has been interested and coöperative in the program during this biennium. This service is highly appreciated and is worth a great deal. In fact, the Department could not properly function without this coöperation.

It should be understood by everybody that the contribution made by the orthopedic surgeons of the State is invaluable. Their coöperative spirit and enterprise and the sacrifices they make in holding the clinics frequently at distant points from their offices make the work possible. Finally, the most outstanding agency in the State at present in the field of care not only for crippled children, but for adults as well, is the Vocational Rehabilitation Department of the State Department of Public Instruction. During the latter part of this biennium, Congress provided an immense amount of money to finance this program. In this State there is a large staff of capable workers both on the State level at Raleigh and scattered throughout the State in the position of divisional representatives, and so on. The combination of a repair or surgical program with the idea of education in the vocational field would seem to make this one of the largest agencies operating in the field at this time. Under the provisions of their regulations no age limit upward seems to be involved and they may take patients

from 16 years of age up. The potentialities of this department as a division of the educational field are unlimited. Coöperation with that department in order to avoid duplication and overlapping of efforts is necessary and desirable from the standpoint of both departments.

REGISTRATION:

It will be interesting to note that the registration included 23,339 crippled children as of June 30, 1944. This may be compared with the number reported two years previously; namely, 19,877. The following tables outlining special work of the Department should be of much interest to the population of the entire State:

TABLE I

STATE CLINICS:

1. Number of orthopedic clinics held.....	414
2. Number of new cases admitted to clinics.....	7,291
3. Number of old cases admitted to clinics.....	5,873
4. Total number of cases attending clinics.....	13,164
5. Number of cast procedures.....	1,030
6. Number of brace procedures.....	278
7. Number of dressings applied.....	498
8. Number of bandage procedures (proprietary).....	274
9. Number of corrective shoes.....	1,348
10. Number of corrective exercises.....	585
11. Number of dietetic treatments.....	755

TABLE II

CASE STATISTICS OF MAJOR SERVICES:

1. General hospital admission authorizations outstanding as of July 1, 1942.....	260
2. General hospital admissions authorized during biennium.....	2,220
3. General hospital extension authorizations issued during biennium.....	709
4. Crippled children under general hospital care July 1, 1942.....	215
5. Crippled children admitted to general hospitals during biennium.....	2,414
6. Crippled children discharged from general hospitals during biennium.....	2,401
7. Total number of days care provided in general hospitals....	35,701
8. General hospital admission authorizations outstanding June 30, 1944.....	400
9. Children provided convalescent or foster home care during biennium.....	257
10. Number of appliances purchased during biennium.....	176
11. Applications for general hospital care received and deferred as of June 30, 1944.....	14
12. Applications for crippled children's service outstanding June 30, 1944.....	401

TABLE III

1. Office	
a. Number State staff conferences.....	104
b. Number conferences with surgeons.....	600
c. Number conferences with health officials.....	1,084
d. Number conferences with welfare officials.....	625
e. Number conferences with official bodies.....	7
f. Number conferences with non-officials bodies.....	4
g. Number other conferences.....	702
h. Number talks.....	87
i. Number in attendance.....	2,689
2. Clinic	
a. Number clinic attendances.....	461
b. Number patients contacted.....	13,867
c. Number instructions to patients.....	5,157
3. Field	
a. Number investigating visits.....	1,146
b. Number new cases located.....	225
c. Number home visits to new cases.....	191
d. Number home visits to old cases.....	1,631
e. Number new cases referred to clinic or surgeon.....	235
f. Number old cases referred to clinic or surgeon.....	1,729
g. Number not home visits.....	210
h. Number appliances adjusted.....	21
i. Number exercises (given or instructed).....	414
j. Number therapies (given or instructed).....	146
k. Number cases referred to Vocational Rehabilitation.....	2,013

RECOMMENDATIONS:

A report of this character is not the place to record recommendations. However, the Director of this Division should be pardoned for repeating again that a doubling of the capacity of the North Carolina Orthopedic Hospital by the establishment of a plant in the eastern part of the State is one of the prime necessities in the expansion of the services to the crippled children of this State.

Second, there is need for the establishment of an additional home for convalescents in the eastern part of the State to correspond to the services provided by the Asheville Orthopedic Home in that section of the State.

Third, the Department of Crippled Children of the State Board of Health should be enabled to expand its program by increasing the number of clinics held and general hospitals which would offer acceptable service to these cases. Just here in this connection, it is hoped that the plan for increased hospital facilities in connection with the University of North Carolina may make provision for this need.

Fourth, one of the most important needs is a direct appropriation by the Legislature of the State of North Carolina of not less than fifty to one hundred thousand dollars annually to this Department to enable it to thoroughly carry out the demands made upon it and to care for the large number of crippled children who at present have to be denied.

DIVISION OF SANITARY ENGINEERING

July 1, 1942-June 30, 1944

INTRODUCTION

The Division of Sanitary Engineering is responsible for all engineering and sanitation activities of the State Board of Health, with the exception of Industrial Hygiene and Malaria Control which are functions of other divisions. It is the responsibility of the Division of Sanitary Engineering to enforce laws and regulations pertaining to sanitation of the environment, and to coordinate the sanitation activities of the State Board of Health with those of local health units, other divisions or departments of the State Board of Health, other State agencies, and Federal agencies.

The activities covered by this Division consist mainly of the promotion of safeguarding public and private water supplies, safe disposal of sewage, sanitary control of foodhandling places, the promotion of safe milk supplies, endemic typhus fever control through the rat-proofing of buildings, the enforcement of all State laws relating to sanitation, including the manufacture and sale of bedding, the recruiting and training of local sanitation personnel, the development of standard inspectional procedure, and the preparation and distribution of technical and informative bulletins relative to sanitation.

ORGANIZATION

During this biennium, the Division of Sanitary Engineering was reorganized under a new Director. One of the primary moves in this reorganization is aimed at a closer correlation of its activities with district offices of the Division of Local Administration, and with all other divisions of the State Board of Health. Engineering and sanitation activities which were previously under the supervision of other divisions have been re-grouped in the Division of Sanitary Engineering. The Office of Milk Sanitation, which has been operating as a separate unit, although technically in engineering, was placed under the supervision of this Division. Endemic typhus fever control, which had been an activity of the Division of Epidemiology, was also placed under the supervision and made a part of the Division of Sanitary Engineering. The present plan of organization also calls for the assignment of an engineer, two sanitarians on food and general sanitation, and one sanitarian on milk sanitation to each of the three districts of Local Administration. All of these positions are not filled at present, because competent technically trained men are not available.

The personnel assigned to these three districts are under the technical supervision of the Division of Sanitary Engineering. The local assignments of the district personnel are subject to review and approval of the district medical directors, but technical procedures to be followed and other administrative control rest with the Director of the Division of Sanitary Engineering.

The war impact has been very heavy on this Division during the past two years, both from the standpoint of personnel losses, and in

service rendered. Some of the personnel have resigned to enter the military service, while others have resigned to accept more lucrative employment in private industry. During the biennium 1940-1942, this Division employed eight engineers, eight sanitarians, and two bedding inspectors. During the year 1942-1943, we lost two engineers, and in 1943-1944 there were four engineers, six sanitarians, and one bedding inspector employed in this Division. One additional engineer employed by another division has been detailed to engineering since the Division was reorganized in October 1943.

Although our staff has been greatly reduced beyond the point where efficient service could be rendered on routine matters which have been the function of this Division for a number of years, it has also been necessary to devote considerable time to special problems on water, sewage, milk, and foodhandling sanitation in military or war activity areas. This Division has worked closely with military authorities on problems affecting both military and civilian populations, and every effort has been made to concentrate our attention on those areas where war activities have unbalanced the normal environmental sanitation program. In most cases, excellent coöperation has been received from military authorities, although there are a few instances where we have not received the coöperation we feel we were due. The U. S. Public Health Service has detailed a number of lend-lease engineers and sanitarians to the State to assist in war areas where special problems have arisen, and, for the most part, these men have been assigned to local units which needed this assistance. It has been difficult, even with lend-lease personnel, to adequately serve these areas to the satisfaction of all concerned, because of the great loss of trained, qualified local sanitarians, approximately 65 per cent of whom have entered the military service. Two of the lend-lease men have been detailed to work on milk supplies from the State office, and a third is serving as a district sanitarian on food and general sanitation. Recruitment and training of War Emergency personnel has consumed much time, and the results obtained are, at the best, questionable.

ACTIVITIES

During the past biennium, and under the present organizational Plan, the Division of Sanitary Engineering has engaged in the following activities:

I. Engineering

- (a) Municipal water treatment and sewage disposal problems.
- (b) Protection of private and semi-public water supplies.
- (c) Promotion of private, institutional, and semi-public sewage disposal facilities.
- (d) Stream sanitation and industrial waste problems.
- (e) Assistance with Water Works Operators' Schools.
- (f) Certification of water plant operators.
- (g) Promotion and assistance with post-war planning of sanitary facilities.
- (h) Security Facility Program in coöperation with the U. S. Public Health Service and Office of Civilian Defense.

- (i) Inspection and certification of interstate water and milk supplies.
- (j) Shellfish sanitation, inspection and certification for interstate commerce.
- (k) The review and approval of plans for water works improvements, sewage disposal facilities, swimming pools, dairies and pasteurization plants, and abattoir design and construction.
- (l) Endemic typhus fever control through the rat-proofing of buildings.
- (m) Problems relating to sanitary garbage disposal.
- (n) Recruiting and training of sanitation personnel, both State and local.
- (o) Promotion, inspection, and design of stock plans for abattoirs.
- (p) Assistance to counties and individuals relative to priorities for obtaining necessary materials and equipment.
- (q) Preparation of technical bulletins.
- (r) Special administrative problems relating to securing draft deferments for essential men in water and sewage plants, and special investigations made at the request of military authorities.

II. *Sanitation*

- (a) The training of local sanitarians.
- (b) The inspection of and State law enforcement as related to:
 - 1. Hotels.
 - 2. Cafes.
 - 3. Tourist homes, tourist camps, and summer camps.
 - 4. Meat markets and abattoirs.
 - 5. Jails, prison camps, and State and private institutions.
 - 6. Schools.
 - 7. Enforcement of the State Bedding Law.
- (c) Conducting of foodhandling courses in coöperation with local health units and other State agencies.
- (d) Inspection for approval of FHA water and sewerage installations at private homes.
- (e) Pasteurization plant and dairy inspection and rating.
- (f) Special investigations of complaints relating to improper sanitation.
- (g) Coöperative work with other Federal agencies, such as Farm Security Administration and War Food Administration.

To render the type of efficient and adequate service required in connection with all of the above listed activities is impossible under present conditions, consequently, some activities have had to be partially neglected until more personnel is available; however, during the past two years the following has been accomplished:

Water and Sewerage

Nineteen new water supplies and/or treatment plants have been completed, eight of this number were installations at military establishments. There were also 14 new water systems installed during the

period, seven of which were at military establishments. Eight public sewage treatment plants have been installed. Four sewage treatment plants have been installed at institutions, and 12 at military establishments. Ten municipal sewerage systems have been installed or enlarged, and ten military establishments have installed systems. The plants for all of these improvements were reviewed and approved by this office. A listing of these improvements follows.

New Water Supplies and/or Treatment Plants

Municipal:

1. Boonville
2. Cleveland
3. Elkin
4. Fayetteville
5. Jacksonville
6. Manteo
7. Wilmington

8. New Bern

9. Fontana Dam
10. Swansboro
11. Holly Ridge

Military:

8. Installations:

Names of the location withheld from publication.

New Water Systems

Municipal:

1. Boonville
2. Cleveland
3. Manteo
3. Fontana Dam
5. Swansboro

6. Central Falls Sanitary District
7. Holly Ridge

Military:

7. Installations:

Names of the location withheld from publication.

New Sewage Treatment Plants

Municipal or Public:

1. Jacksonville
2. Conover
3. Holly Ridge
4. Kings Mountain
5. Boone
6. Wrightsville Beach
7. Grifton
8. Country Club Estates at Winston-Salem (Wrightsville Beach plant is under construction)

Institutional:

1. Guilford County Sanatorium
2. Pfeiffer Junior College
3. Summerfield Negro School
4. U. S. Rubber Company Plant. Charlotte, N. C.

Military:

12. Installations:

Names of the location withheld from publication.

New Sewerage Systems, or Old Systems Improved

Municipal:

1. Wrightsville Beach
2. Swansboro
3. Fontana Dam
4. Boonville
5. Carolina Beach
6. Holly Ridge
7. Hot Springs

8. Lilesville

9. Pineville
10. Manteo

Military:

10. Installations:

Names of the location withheld from publication.

The Security Facility Program, a coöperative project between the State Board of Health, U. S. Public Health Service, and Office of Civilian Defense, has been carried on during this biennium as an extra activity brought on by the war and as an adjunct to the Ten-Point Program reported in 1942. Inspections were made of water facilities having a direct bearing on the war effort. Recommendations as to operative and protective measures were made to those towns included on this facility list. The Director of the Division served as Water Works Coördinator for the Office of Civilian Defense.

Certification of interstate carrier water supplies and watering points is also a function of this office, in coöperation with the U. S. Public Health Service. There are 48 such railroad watering points under inspection of this office.

As has been the practice for the past several years, the engineers of this office assisted with the short training school for filter plant operators at North Carolina State College and the University of North Carolina. These courses are arranged by the Extension Service of the University. The Association of Water Plant Operators gives examinations at the end of each course, and those making a passing grade are issued certificates countersigned by this office. During the past two years, 37 applicants have been awarded certificates in one of the three grades—A, B, or C. This program has been of distinct value to the towns, and to the operators, themselves, in that it aids the operator in qualifying for the position he holds. Public health benefits and protection derived from proper water plant operation are obvious.

Considerable emphasis has also been placed on assisting the towns throughout the State in making plans for post-war improvements to their water and sewage facilities. The towns have been urged to employ engineers, prepare plans and estimates, and to place water and sewage improvements high on their list of post-war projects. Many of the existing water and sewage treatment plants throughout the State are badly in need of major repair and enlargement. Questionnaires have been mailed to all towns requesting certain information, and replies to date indicate that plans for approximately six million dollars worth of water improvements and four million dollars worth of sewage works are anticipated. This office has made definite recommendations to a number of towns, advising them of improvements needed to make the water supplies adequate and safe.

Stream sanitation is becoming more critical each year, and considerable emphasis is being placed on this phase of the work which has been neglected for the past several years. Conferences have been held with industries involved with stream pollution in this State, and plans for coöperative approach and study of the problem have been formulated. Industry is beginning to realize that it has a responsibility in this matter, and progress should be forthcoming, if men are made available to this office to assist in carrying out this much needed program. In coöperation with the Tennessee Valley Authority Health and Safety Section, the State Department of Conservation and Development, the State Department of Agriculture, the State Planning Board, and the State Board of Health, a program of coöperation has been adopted

which will be put into effect in that area of the State included in the Tennessee Valley Authority watershed. The paper and pulp manufacturers have also set up an organization to carry on research, and have expressed their interest in coöperating with State health officials. Following the war, additional industries will be located in this State, and study and planning are needed now to prevent and control additional pollution of our streams. An additional engineer and a chemist are badly needed by this Division to carry on our part of this work.

In addition to the items mentioned above, the policy of coöperating and helping the municipalities and industries with water and sewage problems has been emphasized. It is felt that much needed improvement in the operation of these plants will result, which, of course, means better health protection to the great number of our population served each day by municipal or public water supplies.

Shellfish Sanitation

The program of shellfish sanitation, although a joint activity between the State Department of Conservation and Development and the State Board of Health, is one of the most important programs now being carried on by this Division. It has been prosecuted under very difficult and trying conditions during the past two years. The engineer in charge of this program for a number of years resigned to accept a commission with the U. S. Army, and he was replaced by a county sanitarian. This sanitarian was later drafted, despite our pleas that he be deferred, since he was our only man who had had any experience in shellfish sanitation. After he was drafted, it became necessary for us to transfer one of our sanitarians from foodhandling work to shellfish sanitation, thereby weakening that activity and necessitating the Principal Sanitary Engineer spending considerable time with him in acquainting him with the laws, policies, and procedures. Despite all this, 2,884 inspections of shellfish growing areas, and oyster, clam, and crabmeat packing plants have been made during this two-year period.

In addition to the routine activities, the engineers of this Division, with the assistance of representatives of the U. S. Public Health Service, have made a complete sanitary survey of all shellfish growing areas along the coast of North Carolina. This work was deemed necessary as a result of the increase in quality of sewage pollution reaching the shellfish growing waters from military establishments, industrial plants, and from the tremendous increase in population of towns located adjacent to our coastal waters in which shellfish grow. During the survey, we had close coöperation from the Navy and Army authorities concerned, and have secured valuable information regarding the type and number of sewage treatment plants located on military reservations which discharge waste into the shellfish waters of the State. This sanitary survey has focused our attention on the need for more close supervision, including bacteriological analyses of the waters concerned. A bacteriological survey is now being made jointly with the U. S. Public Health Service, in order that we may secure correct information before recommendations for restricting certain growing areas are made to the

State Department of Conservation and Development. As a result of these investigations, one bacteriological survey has already been made of the water of Bogue Sound, adjacent to Morehead City, and sampling points have been established for future surveys just mentioned. Two hundred and sixty-seven samples of water were collected for bacteriological analyses of this area in Bogue Sound which was later restricted. One outbreak of typhoid fever, attributed to clams originating in North Carolina and which was reported from New York, has also been investigated. It is also necessary that this office, in connection with the U. S. Public Health Service, certify for interstate commerce shellfish produced in this State which is sold in other states.

Milk Sanitation

As reported in previous years, considerable work has been done by the Division of Sanitary Engineering in promoting the adoption of milk ordinances, in developing a program of dairy farm construction and sanitation, and in improving pasteurization plants and methods, which has placed North Carolina high among the list of states in accomplishments. As important as this work is, it has suffered severe handicaps during the past two years, mainly because of the war impact which necessitated bringing into the State, from outside sources, great volumes of milk which did not measure up to North Carolina standards. Milk control in North Carolina is legally under control of local health units and local municipal governing authorities. There is no State milk law. The duties of the Division of Sanitary Engineering, therefore, have been concerned with assistance to local health departments and municipalities in the promotion of the proper type of ordinance, assistance to sanitarians in making surveys, certification to other towns regarding milk supplies coming from distant points, technical advice in the way of preparation of plans, approval of plans for pasteurization plants, and assistance to local health departments in enforcement, when requested. Immediately following the entrance of this country into the war, and the establishment of many military camps in this State, an attempt was made to standardize, or develop a standard control program in such a way that assistance and information could be given military authorities, as well as local health authorities, relative to emergency milk supplies; however, a letter from the Surgeon General of the U. S. Public Health Service to all states and representatives of the industry suggesting that grading provisions be eliminated for the duration of the war has probably had more weight in destroying our standards previously attained in this State than any other one thing. The Standard Milk Ordinance has been developed on the principle of grading, in order that the consuming public might know just what they were getting. The Army, under the pretense of not wanting to have the soldiers served one type of milk in town and another type of milk at the camp, exerted pressure upon a number of local health departments to eliminate their grading provisions. Some of the local health departments acquiesced to this request, or pressure, with the result that their former milk program and standards have gradually deteriorated.

Through coöperation with the Extension Service at State College, considerable effort has been exerted toward working with the industry in the development of new dairies, and a larger milk supply within the State. The Coble milk shed at Lexington has received considerable attention, because of its effect upon the milk supply in North Carolina, as well as neighboring states. Approximately 35,000 to 40,000 gallons of milk a day are being produced and shipped from this shed. Considerable quantities of it go direct to Army camps, and in this respect the local health departments have no control over this supply. One of the lend-lease engineers secured from the Public Health Service was detailed to this particular shed to assist the local authorities with their enforcement program, and a complete survey was made of all grade A producers located in 21 counties in North Carolina and seven counties in Virginia. A milk laboratory was established in the Davidson County Health Department, which has jurisdiction over this supply, and a bacteriologist was also secured from the U. S. Public Health Service to serve as technician in this laboratory. On this shed alone, at least 75 new grade A dairies have been built during the past two years, and two new receiving stations have been built at Ramseur and Guilford College; and two former pasteurization plants have been secured by this company and converted into receiving stations. Also, during the year surveys were made of 14 laboratories doing milk work within the State to check on equipment and technique as outlined in Standard Methods for the Examination of Dairy Products. A list of equipment necessary for milk analyses was compiled for several health department laboratories. A number of sanitarians were given personal instruction in bacteriological technique. A number of special investigations were made of milk supplies going to military reservations, at the request of military medical officers. These investigations covered bacteriological and sanitary surveys of various plants. A number of requests have also been received from military authorities for assistance in checking post-pasteurization contamination which has developed in some of the plants because of the enormous overload and improper sanitation methods within the plant. Also, during the past year sanitary surveys were made of all State institutional dairies, as well as dairies operated by various schools, orphanages, and hospitals. It was also necessary that representatives of this office make a survey of the supplies coming into North Carolina from Virginia, as we were unable, because of dual responsibility and the state laws in Virginia, to secure surveys direct from the State Health Department. One outbreak caused by infected milk occurred in North Carolina during the year. This was investigated by a bacteriologist and sanitarian from this Division. A leaky milk cooler cross-connected with an unsafe water supply was the cause of contamination of the milk which was being served at a military post in the State.

A request was made of the U. S. Public Health Service for a detailed study of the Office of Milk Sanitation of the Division of Sanitary Engineering by the new Director of the Division, soon after he reported for duty. The recommendations submitted, following this study, are now being put into effect.

At the present time there are 106 pasteurization plants and 11 receiving stations in the State. Two hundred and eight cities now have the Standard Milk Ordinance in effect, and 40 counties have the ordinance county-wide.

The sanitarian in charge of the Office of Milk Sanitation resigned to accept a more lucrative position with a private industry. This has made necessary the reassignment of sanitarians and engineers detailed to milk work, and at the present time the State has one sanitarian employed, and one engineer and one bacteriologist from the U. S. Public Health Service are detailed to this work. Under present conditions, and with the volume of milk coming into the State from outside sources, it is impossible for these three men to adequately handle this most important problem. One year ago there were four sanitarians and one part-time engineer working on this program. During part of this biennium, the U. S. Public Health Service assigned a mobile milk laboratory to the State, and this laboratory was of invaluable assistance to the office in making special investigations, checking methods of operation within plants, and assisting local health departments with the laboratory control of the milk supplies. It was necessary that the Service transfer this trailer laboratory to another state for other work, and its loss has seriously hampered the effectiveness of our program. Efforts are now underway to secure a trailer by the State Board of Health for use on milk supplies, shellfish, stream sanitation, and special problems. The addition of such a unit to the Division of Sanitary Engineering will greatly augment our present services.

Typhus Fever Control

Rat-proofing of Buildings. This activity, although relatively new in North Carolina, has expanded and developed considerably during the past two years. This unit, when originally established, was under the direction of the Division of Epidemiology, although funds for financing the work were carried in the Division of Sanitary Engineering budget. At the time this Division was reorganized in October 1943, this work was transferred back to the Division of Sanitary Engineering. At the present time the staff consists of one engineer and one sanitarian. In July 1943, two used trucks were secured through the Division of Purchase and Contract from the State Department of Public Welfare to be used in the Typhus Control Program. These trucks have been equipped with all the necessary tools and machinery required for doing this work. The original programs, as set up by the State Board of Health, consisted mainly of poisoning and trapping campaigns in various towns throughout the State where endemic typhus fever was prevalent, the object being to kill as many rats as possible, as quickly as possible. As this program has developed, it has become evident that control of rats through poisoning and baiting alone would not adequately control typhus fever. Studies by the U. S. Public Health Service, and by other states doing this work, have indicated that the main objective is to break up the close association between rat and man; consequently, a program designed to keep rats out of buildings through rat-proofing has been determined to be more effective and more permanent, and

less expensive in the end. Representatives from this office work with the local health officials in securing the adoption of a rat-proofing ordinance, and in the employment of local sanitarians to supervise and carry on the work, once it is begun. Our representatives then assist in determining the scope of the problem, making estimates and surveys of work needed, and exercising general supervision over this work, in coöperation with the Typhus Control Unit of the U. S. Public Health Service.

Rat-stoppage programs on a small scale have been inaugurated in Laurinburg, Wilson, Clinton, Oxford, Snow Hill, Bladenboro, New Bern, and Raleigh. Two excellent programs have been inaugurated and are now in process in Wilmington and Concord. These two programs were set up according to the procedure mentioned above. In Wilmington, since the inauguration of this program 102 establishments have been rat-proofed at a total cost of \$4,852. In Concord, 175 establishments have been rat-proofed at a total cost of \$7,498. The expense of these programs was borne by the individual property owners whose properties were protected.

Rat baiting and poisoning campaigns have also been carried on throughout the State in coöperation with local health departments, and during this two-year period assistance has been given to 51 towns in connection with these baiting programs. The cost of this bait, which was also borne by the towns, or by interested individuals, has totaled \$23,827. During the two-year period, 273 cases of typhus fever and 23 deaths have been reported to the State Board of Health.

Incineration and Garbage Disposal

A number of requests have been received by the Division for assistance in securing priorities for the construction of incinerators, but because of the War Production Board's restrictions on critical materials, no incinerators have been constructed. We have advised with the towns, and in several cases have recommended the sanitary land-fill method of garbage disposal. It is believed that, as a part of the post-war planning, a number of towns will construct incinerators and begin to more adequately handle garbage disposal problems, as soon as these materials are available.

Abattoir Promotion, Design, and Inspection

A State-wide Meat Market and Abattoir Laws was passed by the State Legislature in 1937. Regulations were first prepared and distributed in 1939, when the program was put into effect; however, because of the shortage of veterinarians in certain sections of the State, and the fact that a certain amount of educational work was necessary, the abattoir program has not progressed very rapidly until recent months. After the beginning of the war, with a subsequent creation of Federal agencies to control price ceilings, black market operations, rationed commodities, etc., considerable emphasis was placed on the abattoir program. A coöperative program was worked out between these agencies and the State Board of Health, in which it was decided

that before a slaughterer could receive a permit from the War Food Administration, it would be necessary that he meet the minimum sanitation requirements of the State Board of Health. One engineer from this Division has devoted practically his entire time to the preparation of small standard stock plans, making engineering investigations with regard to waste disposal from abattoirs, preparing engineering specifications, and consulting with municipal officials and other consulting engineers employed by municipalities in working out the standards of design and construction to be followed. Our district sanitarians, charged with the enforcement of State laws governing foodhandling establishments, have also aided greatly in this work, and have given considerable assistance to local health departments in promoting and following up the program of sanitation in these places. The engineer assigned to this activity has also been of assistance to individuals filing applications and securing priorities for critical materials needed to construct abattoirs.

At the present time there are 93 approved abattoirs in the State. It is possible that some of the older ones have ceased operation, or have not secured permits to operate, because of insanitary conditions. Since January 1943, forty-five new abattoirs have been constructed, and seven abattoirs have been remodeled.

General Sanitation

The sanitarians assigned to the enforcement of State Laws, the responsibility of enforcement having been the duty of the Division of Sanitary Engineering for a number of years, have devoted most of their time to sanitation of public eating places, meat markets and abattoirs, tourist homes, tourist camps, prison camps, jails, State and private institutions, and to the enforcement of the State Bedding Law.

As mentioned earlier in this report, the district sanitarians have been assigned to the local administrative districts, and have been working in close coöpration with local health units, assisting in the training of sanitation personnel, assisting local health departments with more difficult court cases, and in making surveys and appraisals of the work done by the local sanitarians, in order that the State Board of Health might be advised as to the degree of law enforcement being secured through local health departments.

Numerous requests have been received from military authorities for detailed inspections of public eating places located in military areas, and the district sanitarians from this office have worked with the authorities at Cherry Point, Goldsboro Air Base, Camp Davis, Fort Bragg, Camp Mackall, Camp Sutton, the Greensboro Air Base, Charlotte Air Base, Camp Butner, and Camp Lejeune.

In coöperation with the U. S. Public Health Service and the Office of War and Food Administration, a program of inspection of industrial plants, with regard to eating facilities in these plants, has been inaugurated during this biennium.

One man has been assigned to the inspection and enforcement of the State Bedding Law. The other man previously assigned to this

work has entered the armed services. Considerable difficulty is being experienced in securing complete compliance with the laws, because a number of out-of-state manufacturers are shipping bedding into the State, and it is difficult for one man to inspect all of this bedding and determine whether or not it is properly tagged and labeled. The sale of stamps, required by law to be affixed to each piece of bedding sold, provides the source of funds from which personnel employed to enforce this law are paid.

Rural sanitation activities or enforcement of the State Privy Law, which heretofore has been an outstanding activity of the Division of Sanitary Engineering, has been greatly curtailed for several reasons. Relief projects in effect during the past several years have been discontinued. Restrictions placed on lumber and other critical materials by the War Production Board have also seriously hindered the progress of this work. A few counties are maintaining their programs, and recent indications point to quite a number of other counties beginning work on this most important program in the very near future. This activity will require considerable attention and concentrated efforts when the war is over and materials are available, as many of the privies constructed during the past five or six years are in need of repair, and rebuilding.

Conclusions

From the above list of activities engaged in, and results accomplished during the past biennium, it will readily be seen that despite the fact that the Division was seriously hampered through the shortage of technical and professional personnel, a considerable volume of work was done.

It is strongly recommended that funds for employment of additional personnel be made available to this office by the 1945 Legislature, in order that we may expand our present activities to the desired point of efficiency, and also develop a stream sanitation program. An engineer and a chemist are needed for this work.

It is also recommended that a mobile trailer laboratory be secured to augment the services needed on shellfish sanitation, stream sanitation, and milk and food sanitation.

Until adequate personnel can be secured to fill the vacancies now existing in the Division, it will not be possible to do more than emergency and routine work.

A compilation of the total number of inspections made, and other activities of the Division, is as follows:

Summary of Activities

Milk Sanitation

Dairy farms inspected.....	2,533
Pasteurization plants inspected.....	551

Municipal Water and Sewerage

Municipal water supplies inspected.....	944
Municipal sewerage systems inspected.....	590

Private Water and Sewerage

Private water supplies inspected.....	215
Private sewerage systems inspected.....	522

Federal Housing Administration

No. Federal Housing applications approved.....	286
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Hotel and Cafe Sanitation

No. hotel inspections.....	558
No. cafe inspections.....	6,643

School Sanitation

No. school inspections	201
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Meat Market Sanitation

No. meat markets inspected.....	2,961
No. abattoir inspections.....	667

Shellfish Sanitation

No. shellfish inspections.....	2,844
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Bedding

No. retail places inspected.....	1,968
No. manufacturing plants inspected.....	3,554
No. pieces of bedding condemned.....	9,777

Typhus Control

Towns conducting rat baiting programs.....	51
Cost of bait distributed.....	\$23,827.95
Establishments rat-proofed	238
Cost of rat-proofing.....	\$12,350.00
Cases of typhus fever reported.....	273
Deaths from typhus fever.....	23

Miscellaneous

No. investigations of swimming pools, institutions, special investigations, prison camps, etc.....	671
Plans reviewed and approved in office.....	60

REPORT OF THE DIVISION OF ORAL HYGIENE

The division of Oral Hygiene believes that, during the biennium, 1942-1944, progress has been made in the attainment of its goal, the prevention of dental diseases and of systemic diseases of dental origin, and that this progress is the result of a dental health education program. "Prevention Through Education" is the motif that coördinates all of the activities of the Division.

The program is directed, primarily, to the children of the State and is carried on in the elementary grades of our public schools. In addition to the Director the Division has a staff of full-time school dentists. The services rendered in the schools are briefly presented in the following outline.

EDUCATIONAL

Teaching: This is done in the classrooms of the elementary schools by the dentists, all of whom have had special training in child psychology and methods of teaching. During the past two school years 244,082 children were taught the value of having clean, healthy mouths.

Preparation and Distribution of Educational Material:

Graded bibliographies for teachers.

Handbooks for teachers.

Graded dental health material for classroom use. This is given to the teachers by the dentists following their visits to the classrooms.

Posters.

Dental health news releases prepared and mimeographed for school papers monthly, approximate circulation, 45,000.

CORRECTIVE

Dental Corrections: The dentists on the staff make the necessary dental corrections for as many underprivileged children, under thirteen years of age, as funds and time will permit. During this two year period, corrections were made for over 100,000 children who, otherwise, would not have been able to receive dental treatment. The parents of the privileged children who were found to need dental care were notified of this through the U. S. Mail.

The dental service is available to pre-school children of the underprivileged group. Many of these children are reached through nursery schools. Others are brought, by parents or older brothers and sisters, to the schools where the dentists are working. It is hoped that the number of pre-school children receiving dental care will continue to increase.

Service for another underprivileged group was inaugurated during the first year of this biennium. Provision was made for the extraction of diseased teeth for the patients in the pre-natal clinics. The extractions are made by the local dentists at a fee concession. It is paid for from funds made available by the Children's Bureau of the Federal Government. This service is being accepted by more patients as time goes on, but there is still much suspicion and superstition to overcome. This will gradually succumb as dental health education progresses.

While the major emphasis is on the school program, adult education is not overlooked. The Director of the Division is in great demand

as a speaker for meetings of Parent-Teacher Associations, Civic Clubs, and other groups. Newspaper and magazine articles and radio talks also reach the adult population.

A new publication, especially designed for mothers, has had wide circulation. This is a small booklet entitled "Mouth Health Catechism." The purpose of the Catechism is to answer the questions so often asked by mothers concerning their own and their children's teeth. It is being distributed to mothers throughout the State by the public health dentists, the public health nurses (in their visits to the homes), and the dentists in private practice. It is also being extensively used in mothers' clubs and study groups.

Like all other branches of health service the Division of Oral Hygiene has, during the past two years, suffered severe losses in personnel. From thirty-two dentists, just prior to the close of the last biennium, the staff has been reduced to the present number of fourteen. Many of those who have left are serving in the various branches of the Armed Forces and others have gone into private practice in defense areas.

It has been impossible to furnish the service to all of the counties that requested it and made appropriations for it. In the sixty-five counties that did receive the service it was necessary to reduce the time. However, the County Health Officers and the County Superintendents of Schools have been most understanding and coöperative and have helped us to attain maximum results with a minimum staff. At the same time the remaining staff members have redoubled their efforts in the war being waged against ignorance and disease as related to dental conditions. Concrete evidence of this is given in the following summary of corrective and educational work done by the dentists during the school years, 1942-1943 and 1943-1944.

SUMMARY OF CORRECTIVE AND EDUCATIONAL WORK BY DENTISTS

Number of counties visited.....	65
Number of schools visited.....	1,808
Number of children—mouths inspected.....	209,648
Number of underprivileged children receiving dental corrections	101,134

AMOUNT AND CLASS OF TREATMENT ITEMIZED AS FOLLOWS

Number amalgam fillings.....	48,244
Number cement fillings.....	17,597
Number silver nitrate treatments.....	187,680
Number teeth extracted.....	81,411
Number children—teeth cleaned.....	99,624
Number miscellaneous treatments.....	12,657

TOTAL NUMBER OF OPERATIONS..... 447,213

Number of children referred to local dentists.....	85,709
Number of children worked for who were grade repeaters.....	34,011
Number of children worked for who were pre-school age.....	5,672
Number of lectures on Mouth Health.....	5,500
Total attendance at lectures.....	244,082

STATE LABORATORY OF HYGIENE, RALEIGH, N. C.

When we submitted our report for the period 1940-42 we expressed the opinion that our experience during the biennial period 1942-44 would give us a clear picture of operating costs in the new plant which we occupied early in 1940. Although we have been in our new plant more than four years, we have been operating under war-time conditions most of this period. We cannot, therefore, use this report with as much confidence as if it were obtained during more normal times. Since the immediate future confronting us will also be abnormal, we are attempting to extend this report over a six-year period rather than over the usual four year period and compare three biennial periods instead of two. This effort to use a larger sample of experience in the effort to see more clearly into an uncertain future may or may not be successful. Since the most universal yardstick is the financial one, we will first measure our activities from the basis of total expenditures for the biennial July 1, 1942-June 30, 1944.

Our total expenditures from state funds was \$262,395.88 for the period July 1, 1942 to June 30, 1944. For the period July 1, 1940-June 30, 1942 the amount was \$264,375.01. The period July 1, 1938-June 30, 1940 called for an expenditure of \$239,928.00. These total expenditures can be broken down into 14 budget items:

Salaries and Wages—accounted for \$128,269.00 in 1942-44; \$122,-824.00 for 1940-42; and \$116,311.00 in 1938-40. Increases for the biennial covered by this present report were due entirely to an increase in the salaries paid laboratory workers, since we actually experienced a decrease in the number of employees during this period and frequently were unable to make replacements as rapidly as resignations occurred.

Supplies and Materials—cost the laboratory \$67,654.00 in the period 1942-44 as compared with \$75,408.00 in 1940-42 and \$71,145.00 in the period 1938-40. This apparent saving is misleading. Many times during the past two years we have been unable to purchase supplies, notably blood letting needles. While it appears to be a saving, it more nearly represents a decrease in our inventory. When it again becomes possible to purchase supplies, it will be necessary for us to make larger expenditures in order to replenish our stock.

Postage, Telephone, Telegraph, etc., calls for \$13,017 in 1942-44; \$15,438 in 1940-42 and \$13,095 in 1938-40. These amounts are so close together that we can probably use them as a suitable yardstick in estimating our future needs.

There is little difference in expenditures during the periods under consideration for *Traveling Expenses, Printing and Binding, Lights, Power and Water, Repairs and Operations, General Expenses, Insurance and Bonding, Elevator Maintenance and Debt Service*.

The Item—*Motor Vehicle Operation* needs special comment. During the biennial just past we spent \$2,512 under this heading. Most of this represents repairs on antiquated motor vehicles. We have one truck which was purchased in 1935 and has been in constant operation since then. In normal times no efficient business organization would attempt to operate this truck but would replace it with new equipment.

Under the heading—*Equipment*, we have been able to make purchases amounting to only \$1,817.00 during the period July 1, 1942 to June 30, 1944; whereas, our expenditures under this heading were \$3,224.00 the previous biennial and \$2,445.00 during the period 1938-40. Much of our equipment needs replacement by reason of the fact that it is worn out or obsolete.

In spite of the fact that our expenditures have decreased our receipts have increased. During the period July 1, 1942 to June 30, 1944, we collected and deposited as receipts—\$129,722.88. The receipts for the previous period 1940-42 \$122,123.76 and for 1938-40—\$120,780.52.

Products manufactured and distributed amounted to \$35,774.00 in 1942-44 as compared with \$34,225.00 for the period 1940-42. Articles bought and distributed at cost were \$16,389.63 in 1940-42 and \$16,653.00 in 1942-44. Monies received from water tax increased from \$31,720 in 1940-42 to \$35,088.00 in 1942-44.

Specimen containers decreased from \$37,416.00 in 1940-42 to \$36,903.00 in 1942-44. This decrease was due largely to our inability to purchase blood letting needles since we actually distributed a larger number of specimen containers in 1942-44 than we did in 1940-42.

There was an increase in special fees collected during the 1942-44 period, accounting for \$1,844 as compared to \$1,060 for the previous biennial.

Miscellaneous receipts decreased to \$1,958.00 from \$2,281.00 in the previous biennial.

Our small animal colonies contributed considerably to our collections during the past biennial. The sale of our surplus rabbits, guinea pigs and mice represented a considerable part of the \$3,171.90 collected during 1942-44. There were no collections credited to this item in the previous biennial.

The increase in our receipts and the decrease in our expenditures affected a considerable reduction in the amount of monies coming from the General Fund. During the period July 1, 1942 to June 30, 1944 we received \$132,673.00; whereas, in the same period July 1, 1940-June 30, 1942 the General Fund contributed \$142,251.25 to our total operating costs.

On the basis of our financial experience during the past six years it is apparent that we can not only render more and better service in our new plant than we did in our old plant, but that we can do it more economically even after we make allowances for the Debt Service which is incidental to our self-liquidating bonds and interest which must be paid on them. The services which have been rendered

by the laboratory have been affected greatly by the wartime conditions under which we are operating. During the period July 1, 1938 to June 30, 1940 we made 738,057 serological tests for syphilis. During the period 1940-42 we made 826,574 such tests for the civilian population of North Carolina and 223,047 tests for the Selective Service or a total of 1,049,621. During the period July 1, 1942 to June 30, 1944 we made 767,168 serological tests for syphilis on the civilian population of North Carolina and 328,543 for the Selective Service or a total of 1,095,711.

Although we have not been able to make a statistical study covering the period of this biennial we have tabulated the data on the identification forms received with specimens during the calendar year, 1943. It must be remembered that these specimens were not taken from a representative cross section of the people of our State, and that they do not represent a true picture of our syphilis problem. They do, however, throw some light on the magnitude of this problem:

	No. <i>Specimens</i>	No. <i>Positive</i>	<i>Per Cent</i> <i>Positive</i>
White—Male	54,600	3,317	6.1
White—Female	101,046	3,555	3.5
Negro—Male	43,932	10,512	23.9
Negro—Female	81,477	15,693	19.2
Indian—Male	369	55	14.8
Indian—Female	1,056	72	6.8

Purpose for Which Specimens Were Sent

Diagnosis	99,335	13,974	14.0
Check on Treatment.....	17,793	6,985	39.2
Prenatal	46,104	1,460	3.1
Marriage	18,610	904	4.8

Certain Occupations

Cosmetologist	12,519	311	2.4
Midwife	1,019	106	10.4
Food Handlers.....	20,132	1,519	7.5
Domestic Servants.....	53,714	5,047	9.2
Teachers	3,348	158	4.3

There was a slight increase in the number of water samples examined during the present biennial. In most instances, however, the number of specimens examined during the present biennial were smaller in number than were examined during the previous biennial. It seems probable that these decreases were due to a reduction in the personnel of our local health departments as well as in the number of physicians practicing medicine in North Carolina.

Of the biological products distributed by the laboratory—there was a slight increase in the amount of diphtheria antitoxin during the present biennial as compared with the previous one. There was a considerable decrease in the amount of diphtheria toxoid used. We have noted in practically every report since the introduction of substances which would immunize people against diphtheria that a decrease in the use of the immunizing substances also called for an

increase in the amount of diphtheria antitoxin. It costs the laboratory much more to prepare enough diphtheria antitoxin to treat one patient with diphtheria than it does to immunize a considerable number of children against the disease. It is not only the laboratory which suffers a loss when diphtheria toxoid is not used; it costs the parents much more to have a child treated than it does to have the child protected. The doctor who treats the patient must expend much greater effort in treatment than for prophylaxis.

There was an increase in the amount of smallpox vaccine used in 1942-44. Sufficient smallpox vaccine was distributed to protect 611,559 people. There was, however, a definite decrease in the amount of typhoid vaccine distributed, the decrease being approximately 30 per cent. Some of this decrease may be accounted for by the fact that a considerable number of people are taking the annual booster dose of the vaccine in either 1/10cc dose intracutaneously or the 1/2 cc. subcutaneously in preference to taking the complete immunizing treatment every three years. By the intradermal method 3/10 of a cc. will give greater protection with less discomfort, if 1/10cc. is administered each year than will 2 1/2 cc. taken in the regular three doses every three-year method. When the subcutaneous method is used 1 1/2 cc. will take the place of 2 1/2 cc.

During the biennial there was a net decrease in the number of rabies treatments distributed.

There was a marked increase, however, in the amount of Pertussis Vaccine used. The increase in popularity of this vaccine which will protect children against whooping cough is most encouraging.

By and large there has been very little change in either the amount or the type of service which the laboratory has been rendering to the citizens of the State.

Although we have been unable to make much progress in improving the quality of our routine service or in increasing the amount of it, we have been able to make substantial advances in two other fields of endeavor which we believe to be distinctly worth while and which will probably pay greater dividends to the people of the State than the performance of routine service.

At the beginning of this present biennial approximately 40 laboratories had been approved for the making of serological tests for syphilis under the State Marriage Law. Up until July 1, 1942 we had been able to do little in the way of supervising these laboratories. Fortunately, the United States Public Health Service made available to us the services of a competent bacteriologist without cost to the laboratory budget. This made it possible to have a representative of the laboratory visit each of the local laboratories which have either been approved or have applied for approval. Our representative has inspected the quarters and equipment of these local laboratories and has attempted to appraise the training, experience and technical skill of the laboratory workers who are actually performing laboratory tests. In many instances we have been able to offer suggestions, to give instruction, or to arrange for the instruction of these local labora-

tory workers. We have also made suggestions as to the improvement of quarters, and the purchase of laboratory equipment and supplies. These laboratories have not only improved their physical equipment, but have improved the quality and increased the scope of the services which they are rendering. Sixty-four of these laboratories reported the making of 335,332 serological tests for syphilis during the calendar year, 1943. During this year the State Laboratory of Hygiene performed 387,039 tests on civilians and 175,002 tests for Selective Service Boards. Assuming that there are no duplications in these reports, their combined total of 897,373 serological tests would represent a little more than one-fourth of the population of the State. Since serological tests for syphilis are only one of many activities of these approved laboratories, it is not difficult to visualize the great amount of service which they are rendering to the State and the possibilities for increasing both the quality and the quantity of service which these laboratories can render.

During the past year a representative of the State Laboratory of Hygiene has visited each of the approved laboratories on at least one occasion and several of them two or more times. A recent inspection formed the basis for the rating of 63 laboratories as follows:

	<i>Excellent</i>	<i>Good</i>	<i>Fair</i>	<i>Poor</i>	<i>Very Poor</i>
Technical Work	16	30	17	0	0
Equipment	20	23	16	4	0
Light	18	26	10	5	4
Refrigeration	31	21	8	0	3
Sterilizing Facilities	13	26	19	5	0
Cleaning Facilities	16	20	17	10	0
Space	21	23	13	6	0
Final Rating	14	28	19	2	0

Workers in ten of the approved laboratories have been instructed in gonococcus culture procedures.

A conference of local laboratory workers was called at the State Laboratory of Hygiene on April 12 and 13 of this year. Eighty-four workers from all parts of the state attended. We were assisted by Dr. Norman Conant, Duke University, who spoke on "Laboratory Diagnosis of Fungus Diseases"; Dr. Wm. Fleming, University of North Carolina, who spoke on "Serological Tests of Syphilis"; Dr. John Larsh, University of North Carolina, who spoke on "Intestinal Parasites"; Dr. H. P. Fraser, National Institute of Health, who outlined the services of that institution; and by Dr. Milton J. Rosenau, School of Public Health, University of North Carolina, whose subject was "Laboratory Workers in the Public Health Program." Numerous members of our staff assisted in the conduct of the conference.

Our approval laboratories can be of great assistance in combating many of our acute infectious diseases. In communities where there are no existing facilities for the examination of milk an approved laboratory may materially aid in our milk control program. Since most of these laboratories are supported by local funds, it is improbable that they will be subject to changes in state or national economics.

During the past biennial the following special studies or investigations have been undertaken:

1. The effect of water softeners on the deposit of calcium in teeth and bones—Preliminary report not yet published.
2. Vitamin C content of North Carolina cooked foods—To be published in the *North Carolina Journal*.
3. Nutrition Studies—Report not yet prepared.
4. Nutritional Aspect of Toxemia Pregnancy—Study in progress.
5. Development of a Medium for the Delayed Culture of the Gonococcus—Published in *Journal of Laboratory and Clinical Medicine*—April 1944.
6. Gonococcus Culture Studies to be published in the *Journal of Bacteriology*.
7. Distribution of Rickettsial Infection in North Carolina—Study in Progress.

It would seem that the laboratory has had more than its share of personnel problems. During the past year we have had 11 resignations. It has been most difficult to secure satisfactory replacements.

In "A Half Century of Public Health," the section prepared by Dr. Frederick C. Gorham contains the following statement:

"On March 29, 1871, Pasteur wrote to Duclaus:

"'I have a head full of the most beautiful projects for work. The war has forced my brain to lie fallow. I am ready for new productions. Alas! Perhaps I am laboring under an illusion. In any case, I shall make the attempt. Oh! why am I not rich—a millionaire? I would say to you, to Raulin, to Gernez, to van Tiegham, etc., Come! We will transform the world by our discoveries!'"

The riches of Pasteur were not counted in francs and centimes, but in ideas and inspirations. It was not mercenary reward, but Pasteur's wealth of ideas, his fruitful inspiration, his stimulating example, that aroused his students and followers to answer his summons, in the fifty short years following, the world has been transformed by their discoveries.

Although there are no Pasteurs today and most of us who have followed in the path which he trod will cast very short shadows in comparison to his, we are inspired with the same hopes and aspirations. We have the desire, at least, for greater opportunities to render better service.

STATE LABORATORY OF HYGIENE

Receipts

	July 1, 1942- June 30, 1944	July 1, 1940- June 30, 1942
BIOLOGICALS MANUFACTURED IN STATE LABORATORY OF HYGIENE:		
Toxoid.....	\$ 16,281.66	
Diphtheria Antitoxin.....	3,075.01	
Tetanus Antitoxin.....	1,201.85	
Pertussis Vaccine.....	6,693.43	
Autogenous Vaccine.....	345.00	
Silver Nitrate.....	2,489.50	
Antirabic Treatment.....	5,368.50	
Media Reagents.....	319.65	
	\$ 35,774.60	\$ 34,225.49
ARTICLES BOUGHT AND DISTRIBUTED AT COST:		
Neoparsphenamine.....	\$ 11,497.79	
Distilled Water.....	3,992.09	
Bismuth Tartrate.....	759.50	
Scarlet Fever Antitoxin.....	75.00	
Dick Test.....	51.75	
Blanching Test.....	13.50	
	16,389.63	16,653.93
TOTAL.....	\$ 52,164.23	\$ 50,879.42
Water Tax.....	35,088.00	31,720.83
Special Fees.....	36,903.54	37,416.23
Specimen Outfits.....	1,844.75	1,060.25
Miscellaneous.....	1,958.77	2,281.89
Animals.....	3,171.90	
TOTAL.....	\$ 131,131.19	\$ 123,358.62
REFUNDS.....	1,408.31	1,234.86
NET TOTAL.....	\$ 129,722.88	\$ 122,123.76

FINANCIAL STATEMENT

TOTAL EXPENDITURES.....	\$ 262,395.88	\$ 264,375.01
TOTAL RECEIPTS.....	129,722.88	122,123.76
APPROPRIATION.....	\$ 132,673.00	\$ 142,251.25

STATE LABORATORY OF HYGIENE

Disbursements

	July 1, 1942- June 30, 1944	July 1, 1940- June 30, 1942
Salaries and Wages.....	\$ 128,269.74	\$ 122,824.84
Supplies and Materials.....	67,654.38	75,408.75
Postage, Phone and Wires.....	13,017.85	15,438.33
Travel Expense.....	1,341.07	1,342.84
Printing and Binding.....	2,508.32	3,277.73
Motor Vehicle Operation.....	2,512.16	1,799.74
Lights, Power and Water.....	4,621.90	4,492.62
Repairs and Alterations.....	2,562.92	2,780.14
General Expense.....	187.32	156.94
Insurance and Bonding.....	801.63	1,339.34
Equipment.....	1,817.49	3,224.57
Elevator Maintenance.....	804.00	804.00
Debt Service.....	25,925.00	27,185.00
Transfer to Building Fund.....		3,336.17
War Bonus.....	10,324.60	
Workmen's Compensation.....	47.50	114.00
Motor Purchase.....		850.00
TOTAL.....	\$ 262,395.88	\$ 264,375.01

STATE LABORATORY OF HYGIENE, RALEIGH, N. C.

REPORT OF EXAMINATIONS MADE

	July 1, 1942-June 30, 1944				July 1, 1940-June 30, 1942 Total
	Positive	Negative	Unsatisfactory	Total	
Water Analyses:					
Bacterial and Chemical.....				14,938	14,088
Sewerage.....					84
Blood Culture Typhoid.....	114	6,807		6,948	7,893
General Blood Cultures.....				873	961
Feces and Urine Cultures.....	377	3,770		4,147	6,953
Agglutination Tests:					
Macro Typhoid Widal.....	121	9,225		9,346	11,492
Weil Felix Reaction.....	312	7,757		8,069	8,852
Macro, Undulant Fever.....	82	6,987		7,069	8,191
Tularaemia.....	86	711		797	540
Serological Tests for Syphilis:					
Civilian.....				767,168	826,574
Selective Service.....				328,542	223,047
Microscopic Examinations:					
Diphtheria.....	665	9,179	4	9,848	10,917
Spinal Fluid.....				267	245
Tuberculosis (Sputum).....	1,994	10,583	108	12,685	17,054
Malaria (Blood Smears).....	21	1,628	9	1,658	2,232
Rabies (Animal Brains).....	460	1,086	59	1,605	2,036
Vincent's Angina.....	4,640	12,218		16,858	22,004
Gonorrhea.....	1,300	18,890	64	20,254	21,714
Darkfield (Chancre Serum).....	29	70	10	109	172
Feces, Intestinal Parasites.....	3,355	15,135	414	18,904	29,940
Animal Inoculations:					
Tuberculosis.....				24	44
Rabies.....				284	254
Miscellaneous.....				2,690	7,378
Culture for Gonococci.....	7	145		152	
TOTAL.....				1,233,235	1,222,755

STATE LABORATORY OF HYGIENE, RALEIGH, N. C.
REPORT OF BIOLOGICALS DISTRIBUTED

	July 1, 1942- June 30, 1944	July 1, 1940- June 30, 1942
THE FOLLOWING ARE PREPARED IN STATE LABORATORY OF HYGIENE:		
Diphtheria Antitoxin:		
1,000 Unit Packages.....	374	345
10,000 Unit Packages.....	7,000	8,903
20,000 Unit Packages.....	2,141	608
Diphtheria Toxoid:		
1 cc Vials.....	1,167	1,146
10 cc Vials.....	26,145	24,613
Schick Tests for Diphtheria:		
10 Test Packages.....	3,522	4,178
100 Test Packages.....	2,104	2,189
Schick Control for Diphtheria:		
10 Test Packages.....	364	664
100 Test Packages.....	106	79
Smallpox Vaccine:		
Individual Tubes.....	170,728	143,808
50 Dose Vials.....	8,809	8,409
Typhoid Vaccine:		
3 cc Vials.....	1,799	4,850
10 cc Vials.....	44,906	188,302
50 cc Vials.....	2,358	
100 cc Vials.....	5,657	
Rabies Treatments.....	1,259	1,481
Pertussis Vaccine:		
5 cc Vials.....		1,037
10 cc Vials.....	13,770	8,473
Autogenous Vaccine.....	75	98
Bacterial Cultures.....		31
THE FOLLOWING ARE BOUGHT AND DISTRIBUTED AT COST:		
Tetanus Antitoxin:		
1,500 Unit Packages.....	2,309	2,392
10,000 Unit Packages.....	103	76
Tetanus Toxoid:		
10 cc Vials.....	264	820
Combined Diphtheria-Tetanus Toxoid:		
10 cc Vials.....	1,243	50
Scarlet Fever Antitoxin:		
Prophylactic Syringes.....	25	10
Therapeutic Syringes.....	5	2
Dick Test for Scarlet Fever.....	965	1,050
Blanching Tests for Scarlet Fever.....	144	220
Bismuth Tartrate:		
20 cc Vials.....	1,499	1,784
Meningitis Serum (Syringes):		
1 cc Vials.....		512
10 cc Vials.....		7,992

REPORT OF BIOLOGICALS DISTRIBUTED—Continued

	July 1, 1942- June 30, 1944	July 1, 1940- June 30, 1942
Neosarsphenamine and Sulpharsphenamine:		
0.1 Gram Ampules.....		166
0.2 Gram Ampules.....		177
0.3 Gram Ampules.....		95
0.4 Gram Ampules.....	608	274
0.6 Gram Ampules.....	64,888	65,632
0.9 Gram Ampules.....	10,733	12,899
4.5 Gram Ampules.....	299	758
Distilled Water:		
10 cc Vials.....	82,153	65,183
Penicillin:		
100,000 Unit Packages.....	105	

DIVISION OF EPIDEMIOLOGY

The fundamental activity of the Division—the collection and analysis of information concerning the incidence of endemic and epidemic communicable diseases in North Carolina—has contributed to numerous epidemiological investigations and various control programs during the biennium.

Data from physicians and others required by state law to report is compiled and then summarized at regular intervals.

The reports issued by the Division for 1942 and 1943 showed that of the 35 reportable diseases six decreased significantly while three showed significant increases. Those diseases decreasing were: diphtheria, malaria, pellagra, syphilis, tuberculosis, and typhoid fever. Those increasing were: chancroid, endemic typhus fever, and gonorrhea. The increase in the reports of chancroid and gonorrhea can probably be attributed to the increasing emphasis placed on these diseases as a result of the expanded venereal disease control program; that is, there has been a recent tendency toward the more efficient diagnosis and reporting of these two diseases.

The increase in typhus fever is a definite increase and shows the need for expanded control measures.

The general supervision of the enforcement of the rules and regulations of the State Board of Health governing the control of communicable diseases continues to be an important part of the work of this Division.

These regulations have been extensively revised during the report period in order to take advantage of the recent trends and newer knowledge in the field of communicable disease control.

Various investigations of disease outbreaks throughout the state and numerous consultations with local health officials concerning local control problems have been completed during the report period.

The educational communicable disease literature available from this Division has been increased in scope and has been revised from time to time.

Approximately 300,000 pieces of literature giving facts and control measures concerning the communicable diseases have been mailed or distributed during the biennium.

The service for referral of the names and addresses of contacts reported by tuberculosis and venereal disease patients has been expanded.

The local health departments receive this data, locate the contacts, arrange for examination or treatment, and then report the results of their activity. These activity reports are compiled in the Central Tabulating Unit in the case of venereal disease work and an evaluation report prepared that gives the level of efficiency of contact investigation in each county.

At the present time there are insufficient funds for evaluating the tuberculosis follow-up work.

The number of typhoid fever carriers registered with this division has increased considerably. The total has reached approximately ninety. These carriers are followed up at regular intervals by the local health departments and are prevented from working or living in locations where precautions cannot be taken to avoid transmission of the disease. Information concerning changes of address is compiled by the division and referred to the local departments.

Following the reorganization of the Division of Sanitary Engineering the Typhus Fever Control Unit was transferred to that division.

In August, 1943 the venereal disease control program was transferred to the Division of Local Administration.

The reports of the units of the Division of Epidemiology follow:

THE CENTRAL TABULATING UNIT: The function of the Central Tabulating Unit is the preparation of reports and tabulations for administrative and review purposes as well as individual listings for control purposes. This work is done by the punch card and business machine system since the scope of the material prepared is so great that manual preparation would be impractical.

In addition to the work done for the Division of Epidemiology the unit performs certain activities for the other divisions of the State Board of Health.

The following list of material prepared includes examples of most of the types of work done:

I. Venereal Diseases

A. Statistics required by law from all areas receiving federal funds for Venereal Disease control:

1. Monthly Clinic Population Report (Exhibit I)

A glance at the printed sample will readily indicate the value of mechanical preparation.

This report is prepared for all city and county health departments and totaled for the state. It eliminates the necessity of wearisome calculations by the individual agencies.

2. Monthly Clinic Activity Report (Exhibit II)

This report is also prepared for local areas and for the state total. It reflects each month the number of treatments, examinations, etc. performed in the clinics, and also the ratio of this activity to the clinic patient load. Therefore, it can be determined by inspection of this ratio, the efficiency level at which the clinic is operating. A low ratio of treatments per patient indicates irregular attendance resulting in poor success in both public health control (i.e. elimination of infectiousness) and "cure" of the individual patient. A high ratio of treatments per patient would indicate an efficient clinic program.

3. Monthly Venereal Diseases Morbidity Report

This report totals new cases previously untreated for all venereal diseases whether reported by clinic, private physician, hospital or other source, and is mailed monthly to the Public Health Service.

- B. Reports outlined and recommended by the U. S. Public Health Service as important factors in venereal disease control although not specifically required by Congress.

1. Treatment Status Report (Exhibit III)

This report is prepared semi-annually and is an analysis of the measure of success achieved in the treatment of syphilis by standard schedules. The infectious previously untreated cases selected for this report are grouped by time period since admission and by whether or not they have received the scheduled amount of treatment during that time interval which is considered necessary to achieve control of infectiousness and individual "cure."

2. Epidemiologic Evaluation Report (Exhibit IV)

A tabulation of epidemiologic activity has been prepared by the C. T. U. for many years. Since April, 1944, however, this tabulation has been presented in relation to the type and number of investigations, their outcomes and the various types of follow-up workers. We believe this report as currently prepared is a marked improvement over the statement on the number of activities alone.

3. Epidemiologic Evaluation Report—All cases Included Have Had 60 Days for Investigations (Exhibit V)

Prior to April, 1944 the analysis of epidemiologic data was restricted because of the absence of a definite base period for comparison of investigation assignments and outcomes. By the device of marking off a 60-day waiting period before tabulating dispositions and activity, we feel that a clear picture of case finding successes and shortcomings is possible. The groupings of cases by type, disease, diagnosis and completeness of information is a very necessary and valuable aid to all health officers in interpreting this report for their areas.

4. Other Reports

Several reports which are designed to take advantage of the flexibility of the mechanical system in selection of individual cases are prepared routinely for local areas. Since selection of specific cases from a volume of cards is both easy and rapid, many specific control needs are being routinely met by the Central Tabulating Unit. Venereal disease suspects under investigation 60 days or more and still "pending" are selected for reporting to the health officer in a typical report.

II. Vital Statistics

- A. Annual report of birth and deaths in the state which incorporates the following tabulations:

1. Births by race by type of attendant for counties and cities
2. Births by race by legitimacy for counties and cities
3. Deaths by cause by sex, color, and age for the state

4. Deaths by cause by race for counties and cities
5. Infant deaths by cause by months of age for the state
6. Cases and deaths from special diseases (33) by month of occurrence for the state

B. Monthly Tabulations:

1. Births by race for each county
2. Deaths by cause (34) for the state
3. Deaths by age for the state
4. Deaths by cause (28) as requested by the United States Public Health Service

C. Other:

1. Monthly and annual listings by alphabetic arrangement for (1). Births (2). Deaths. These listings prove a very valuable aid to the members of the clerical staff in the Bureau of Vital Statistics who search the files for birth or death certificates requested by the general public. It is estimated that there are at least 50,000 requests annually received by the Bureau for such certificates.
2. Other special studies are prepared on request, if time will permit.

III. County Health Activities

- A. The following reports are prepared for the U. S. Public Health Service and the State Board of Health reflecting all of the health activities in the coöperating city, county, and district health departments. These reports serve as criteria to the two agencies in evaluating health activity in the county and as a guide in allocating funds for such work.

1. Quarterly reports by color reflecting all health activities by local health department with cumulative totals by quarter by calendar year.
2. Annual report similar to the above for the U. S. Public Health Service and for the State.
3. Biennial report by fiscal year (July-June) for local and state health departments showing combined activities for period.
4. Consolidated quarterly report of selected activities for state by total and cumulative totals for calendar year.

IV. Communicable Diseases

- A. Reports prepared from case reports of communicable diseases other than the venereal diseases:

1. Weekly, monthly and annual reports for individual counties and all state showing morbidity figures for thirty-five selected diseases. For a portion from the 1943 annual report see (Exhibit VI).
2. Weekly and monthly reports prepared for U. S. Public Health Service on request.

V. Laboratory of Hygiene

A. Reports and listings prepared from data concerning blood specimens tested at the State Laboratory of Hygiene.

1. Monthly and quarterly statistical tabulations by sex and color, purpose of test, and occupation showing number of positive, negative, doubtful, and unsatisfactory results of blood specimens taken.
2. Quarterly listings by source of report (county health officer, private physician, or institution) by name showing, result of test and other identifying data.

THE MALARIA CONTROL UNIT: The primary objectives of this unit are:

1. To establish the malarious areas within the state by recognized scientific practices.
2. To determine the cause of malaria transmission in each area thus established.
3. To formulate the most practical control plan for each malarious area.
4. To promote the adoption and financing of the control measures recommended.
5. To furnish technical supervision to control programs in operation.
6. To prevent the creation of artificial malaria mosquito-breeding areas.

The malarious areas are found by making county-wide blood slide surveys in the schools. These surveys are conducted in coöperation with the local health departments. On such a survey slides are taken from all school children in the first six grades. The home of each child with a positive slide is precisely established with a symbol on a map. The density of these symbols shows the focal areas.

In order to determine the cause of transmission within the area, detailed entomological investigations are made. A map is prepared showing all bodies of water and other pertinent topographical features. A study of the local *Anopheles* mosquitoes is made and the areas in which they are found to be breeding are indicated on the map.

The formulation of control measures is largely determined by the physical aspects within the area. Elimination of breeding places by filling or draining is considered the most desirable method. This cannot always be accomplished since in some cases the cost would be prohibitive and at times artificial bodies of water which were constructed for recreational or aesthetic reasons cannot be drained. In case of artificial bodies of water efforts are made to persuade the owner to apply larvicidal control. Where the cost of drainage is too high and larvicidal measures are impractical, the home owners in the area are advised to thoroughly mosquito-proof all homes.

In urban areas the local governing bodies are often induced to finance control measures under the supervision of this unit. In rural communities control measures are financed by various farm organizations or by organized drainage districts. In the past W.P.A. help

could be obtained for that purpose, but with the liquidation of that organization, such help is no longer available.

The personnel of this unit makes periodic visits to all control programs in operation to assist in all technical phases of the operations.

Artificial ponds, borrow pits, improperly constructed drainage canals and other man-made hazards are believed to be responsible for at least 50 per cent of the malaria within the state. For this reason, intensive efforts are made to prevent their creation unless proper provisions are made for the control of malaria mosquito breeding. The chief engineer of the State Highway Commission is coöperating by requiring all borrow pits to be properly drained where it is practical to do so. The State Board of Health has a regulation which requires all persons building ponds to first obtain a permit. Before such a permit is granted, an inspection of the site is made and the owner is required to take all necessary preliminary measures, such as cleaning the reservoir and providing means whereby the elevation of the water can be fluctuated.

The normal functions of this program have been greatly curtailed by the loss of personnel. At the end of the period covered by this report only one entomologist and one laboratory technician are working on the part of the program financed by the state. During the biennium 23,133 blood slides have been examined. The entomologist assists local health departments in solving malaria control problems by making special surveys in counties where flare-ups of malaria occur.

The Malaria Control in War Areas Program which is financed by the United States Public Health Service for the protection of military personnel and civilian war workers continues to operate on a large scale with gratifying results. The engineer who formerly supervised the regular state program is acting as director of this program. Operations are carried on in thirteen areas and protection is furnished for sixty-nine war establishments. For use in connection with this program the United States Public Health Service furnishes the state seven engineers, four entomologists, and about three hundred other workers, including the laborers, clerical and supervisory personnel. The United States Public Health Service also furnishes sufficient equipment and materials for the program, including thirty trucks and nine passenger vehicles.

On the MCWA Program, during the biennium, approximately twelve miles of large canals were constructed with machinery, about twenty-five miles with dynamite and approximately two hundred fifty miles by hand labor. Approximately 300,000 gallons of oil were applied to malaria mosquito-breeding areas to kill the larvae.

With the establishment of Prisoner-of-War Camps a new malaria hazard has been created, since most of the prisoners were taken in highly malarious parts of the world. At our suggestion, the Army has adopted a policy, making it necessary that approval be given the proposed location for such a camp by the State Board of Health before it can be built. The Army also furnishes us ten prisoners of war to do malaria control work around these camps.

THE VENEREAL DISEASE EDUCATION INSTITUTE

A new division of the department is the Venereal Disease Education Institute, a coöperative project set up in Raleigh at the beginning of the 1942-43 fiscal year for "Demonstration and study of public educational measures in the control of the venereal diseases." The sponsors are the U. S. Public Health Service, the North Carolina State Board of Health, and the Zachary Smith Reynolds Foundation.

The directives under which the Institute works are "(1) To develop materials for public education in venereal disease control—particularly in the Negro population; (2) To evaluate and study the effectiveness of venereal disease control educational materials; and (3) To arrange for distribution to other States and localities of materials which are demonstrated to be effective."

The Institute Staff consists of the director, four education specialists and writers, four artists, and its clerical personnel. Production of educational materials on a limited basis began early in the calendar year 1943, and 66 different pieces have been published. These consist mainly of posters, pamphlets and projection slides.

This new division is primarily a research agency. It was established when the U. S. Public Health Service felt that such an agency was needed to strengthen the educational part of the national program of venereal disease control. A special allotment of federal funds was made to finance its operation under an agreement that makes available at the national level the results of its research and the educational materials it develops. The Institute has been conducting educational demonstrations in the State, using various informational devices, including posters, pamphlets, projection slides, motion pictures and lectures. The evaluation of the materials and the techniques used by the Institute has been supplied to the U. S. Public Health Service, and many of the materials originated by the Institute are being used widely throughout the country. Some of these materials have gone into all the States, and the U. S. Army has been buying from the Institute during 1944 many of the venereal disease education materials it employs.

During the second year of the operation of the Institute a total distribution of its posters and booklets amounted to 941,740 pieces. In prospect for the ensuing fiscal year is an even greater distribution of these materials. One booklet alone will attain a military circulation of four million copies.

Various States, cities and other political divisions have been purchasing these materials from the Institute which is operating on a non-profit basis. The distribution of materials is made possible through the use of printing funds supplied by an annual contribution of the Zachary Smith Reynolds Foundation. Thus, this agency, while directed by the State Board of Health in operations within the State is rendering the wider service expected of it in the National Venereal Disease Control Program.

REYNOLDS RESEARCH LABORATORY

Staff

The staff of the Laboratory has remained largely the same. Dr. Wm. L. Fleming continues as Director and Miss Mary Wolf as Secretary-Technician. It has been difficult to keep competent help in the animal room, but this problem has been solved for the time being.

Instruction at School of Public Health

The Director has continued with his courses in Venereal Disease Control at the School of Public Health. The number of physicians enrolled in the School has declined sharply in the past two years but classes for physicians have been taught each year. On the other hand, the number of nurses and health educators has increased considerably and large classes in Venereal Disease Control for them have been taught in both the fall and winter quarters for the past two years.

Instruction—Special Courses

From June 22 to July 11, 1942 a special three weeks' intensive course in Venereal Disease Control for Public Health Nursing Supervisors and Senior Nurses was given at the School of Public Health by the Director. Enrollment in the course was limited to fifty students in order to permit more effective teaching. North Carolina students were given the preference but students from all sections of the country were enrolled. During the latter part of this course an Institute in Venereal Disease Control for Health Officers was conducted simultaneously on July 8th, 9th and 10th. Attendance at the Institute was excellent with more than fifty health officers and epidemiologists present. In addition to the Director, Dr. John J. Wright and other staff members of the School of Public Health and the State Board of Health, Mrs. Evangeline Morris of Simmons College, Dr. E. Gurney Clark of Johns Hopkins Medical School, Dr. Nels Nelson of the Maryland State Department of Health, Major Paul Padget, M.C., A.U.S., and Mr. James S. Owens of the Division of Social Protection of the Federal Security Agency appeared on the programs of the nurses' course, the institute, or both. Both the intensive course for nurses and the institute were generally regarded as quite successful.

During August and September 1942 special intensive courses in venereal disease control were given by the Director to six white physicians and three colored physicians who were serving as part-time clinicians in Health Department Venereal Disease Clinics in the state. These courses were conducted in the Venereal Disease Clinic of the Durham Health Department, which through arrangement with the State Board of Health, has sufficient space and facilities to serve as the teaching center for the Director.

Much interest in these courses was evidenced by private physicians serving as part-time clinicians in the Venereal Disease Clinics of local

health departments but because of war time conditions it was decided to postpone continuation of these courses until after the war.

In the fall of 1942 nineteen medical officers of the U. S. Army were sent to the School for a special course in public health training. Considerable time in this curriculum was devoted to training in Venereal Disease Control under the Director.

Consultation Work

The Director regularly visits the Venereal Disease Clinic of the Durham Health Department in his capacity as consultant. The resignation of Dr. R. H. McDowell as Director of this Clinic in the fall of 1943 has forced the Director and Dr. John J. Wright to spend a great deal more time than usual in the Clinic in order to keep it functioning properly. After securing the temporary services of several physicians of the U. S. Public Health Service in order to keep the Clinic open, Dr. O. L. Ader was appointed Director in April 1944.

The Director has also worked with the State Board of Health in his capacity as consultant in setting up and establishing policies for the two Rapid Treatment Centers for venereal diseases which have been started in this state.

Research Activities

Up until February 1943 the long range research program of the Laboratory on immunity in syphilis had been continued but had been hampered by the difficulty of keeping a competent animal caretaker. In December 1942, however, the Director was approached by the Chairman of the Subcommittee on Venereal Diseases of the National Research Council who strongly urged that the facilities of the Laboratory be turned over to the solving of problems in the prophylaxis of syphilis in which the Army and Navy were vitally interested. After some deliberation the Director agreed to do this work. This necessitated terminating temporarily the previous research program of the Laboratory. Consequently in February 1943 the Laboratory started work on the problem of whether or not calomel powder prepared in smaller particle size than that previously used in the preparations of calomel ointments for the Army and Navy for syphilis prophylaxis would be more effective. This work was done under a research contract with the official federal agency for vital war time research, the Office of Scientific Research and Development. This research contract which has paid part of the expenses of this investigation has been extended from time to time, the current contract being in force until April 1945.

The problem of the effect of the particle size of calomel in the effectiveness of calomel ointments in syphilis prophylaxis was attacked by setting up a large scale animal experiment in order to get an answer as soon as possible. The results of this experiment showed quite conclusively that using smaller particle size calomel powders in the preparation of calomel ointments made such ointments more effective

in the prophylaxis of syphilis. This information has been furnished to the Army and Navy.

In the summer of 1943 the Subcommittee on Venereal Diseases of the National Research Council urged the Director to assist in evaluating the prophylactic efficacy against syphilis of certain experimental arsenical compounds. This work could not be done in the summer unless the temperatures of the room in which the experimentally inoculated rabbits were kept was maintained below 75°F. In order to accomplish this, the Office of Scientific Research and Development installed an air conditioning machine in the animal room.

The prophylactic efficacy of four of these experimental arsenical compounds was evaluated in this Laboratory and the results furnished to the Army and Navy. Further work is being done on certain of these compounds in another laboratory.

At the present time research for the federal agency is being carried out along two lines: the first relates to the efficacy of penicillin in the treatment of syphilis; the second is a continuation along certain lines of the work on the importance of particle size of calomel in syphilis prophylaxis. In the work with penicillin in experimental syphilis in rabbits, problems relating to the minimal curative dose and the relative effectiveness of this drug in early and late syphilis are being determined.

Publications

Fleming, William L.: Intensive Treatment of Early Syphilis, N. C. MEDICAL JOURNAL 5: 6-12 (January) 1944.

REPORT OF THE FIELD EPIDEMIOLOGICAL STUDY OF SYPHILIS

The Field Epidemiological Study of Syphilis was set up as a combined project of the North Carolina State Board of Health and the Rockefeller Foundation to determine the effectiveness of the methods being used to control the disease in North Carolina. The rural Orange, Person, Chatham Health District was chosen along with urban Durham County as a study area in order to have approximately the same size rural and urban population groups for comparison. The effectiveness of the control methods is measured by the changes that take place in the discovery rate; the attack rate; and the prevalence rate over a period of years. The effectiveness of the epidemiological approach and contact investigation as carried on by the specialized worker and the general program nurse is being evaluated.

In addition to the statistical research involved, the director of the study has concerned himself with improving the diagnostic procedures and the techniques used in the clinics in the study area. With Dr. William L. Fleming, Director of the Reynold's Research Laboratory, teaching clinics for the physicians working in the Syphilis Clinics in the Orange, Person, Chatham Health District were held. These assisted considerably in raising the level of the diagnostic and treatment procedures used in the District. Frequent Staff Conferences were held by the director with the entire staffs of the health departments in the study area. The director and Miss Allen, the nurse research assistant in the O.P.C. Health District, assisted Dr. Fleming in teaching Venereal Disease Control to the nurses and health educators in the School of Public Health. Miss Bennett, nurse research assistant in the Durham Venereal Disease Clinic, interviews all patients at Camp Butner hospitalized for venereal disease as a case finding and control measure in the Durham area. Because of changes in and lack of medical personnel in the Durham Venereal Disease Clinic, the director with Dr. William L. Fleming has found it necessary to spend considerable time in that clinic to insure the maintenance of its recognized high standard.

Statistical Studies:

The discovery rate or syphilis (the number of newly found cases per unit population of all stages of the disease never previously diagnosed) has dropped steadily both in white and colored in the O.P.C. Health District. The drop has been less noticeable in the white population in Durham where in 1943 there was a significant increase in the colored discovery rate.

The diminishing discovery rate is due to the gradual exhaustion of the back log of late and latent syphilis in the area through routine and legal case finding efforts. The increase in the Durham County colored discovery rate in 1943 can be explained on the migration of

colored labor into the Durham area because of an abundance of war jobs—most of which required a routine blood test for syphilis. This migration is confirmed by the population changes in Durham County as announced by the U. S. Bureau of the Census.

TABLE I

**The Discovery Rate of Syphilis in O.P.C. Health District
and Durham Co., 1941-1943**

Per 1,000 Population

	1941		1942		1943	
	White	Colored	White	Colored	White	Colored
O. P. C.-----	0.7	8.45	0.63	7.02	0.53	6.21
Durham-----	4.15	27.61	3.66	27.27	3.83	43.60

Incidence or Attack Rates:

The incidence (or attack) rate is the number of persons per unit population who newly acquire syphilis within the time period specified. It is a true measure of the effectiveness of control of the disease—since control from a Public Health standpoint means the prevention of new infections.

Table II shows that in both the O.P.C. Health District and Durham County syphilis is increasing—as measured by new infections in the population each year. The numbers are small and the differences each year may be due to chance alone—but the fact that the change each year is constantly in the same direction is, I believe, significant and constitutes a trend. Total cases discovered mean little so far as measure of control is concerned though they are a good reflection of effort. To determine incidence each case must be studied individually to determine as exactly as possible when infection took place.

TABLE II

**The Incidence of Syphilis in the O.P.C.
Health District and Durham Co.
1941-1943**

	1941		1942		1943	
	White	Colored	White	Colored	White	Colored
O. P. C.-----	0.07	0.8	0.09	1.45	0.11	1.76
Durham-----	-----	-----	0.28	4.67	0.24	7.11

It is interesting to note that from two to three times as many new infections occur in the urban Durham County as in the rural O.P.C. Health District.

Prevalence Rates:

The prevalence of syphilis in the study area has been determined by an analysis of all blood tests performed by both clinics and physicians in the area. The number of persons receiving tests rather than the number of tests alone has been used to determine prevalence. Where more than one test was performed on one person the U.S.P.H.S. code was used to determine whether it should be called positive or negative. It is realized that a prevalence study of this sort is bound to be biased on the high side because of the many reasons for people seeking blood tests, but the bias will remain fairly constant over the years and should give a fairly accurate picture of the trend of syphilis in the entire population.

The results of these prevalence studies is shown in Table III.

TABLE III
Prevalence of Syphilis in the Orange, Person, Chatham
Health District and in Durham County as Shown by Serological Tests
(Exclusive of Selectees)

1941

	White			Colored		
	Number Tested	Number Positive or Doubtful	Previous Rate per 1,000 Population Tested	Number Tested	Number Positive or Doubtful	Previous Rate per 1,000 Population Tested
O. P. C.-----	2,985	89	29.8	3,406	587	172.3
Durham *-----	2,829	145	51.2	6,388	1,691	264.7
TOTAL-----	5,814	234	40.2	9,794	2,278	253.0

* Durham Clinic only.

1942

	White			Colored		
	Number Tested	Number Positive or Doubtful	Previous Rate per 1,000 Population Tested	Number Tested	Number Positive or Doubtful	Previous Rate per 1,000 Population Tested
O. P. C.-----	2,496	69	27.6	2,384	400	167.8
Durham-----	8,066	401	49.7	9,434	2,222	235.5
TOTAL-----	10,562	470	44.5	11,818	2,622	221.9

1943

	White			Colored		
	Number Tested	Number Positive or Doubtful	Previous Rate per 1,000 Population Tested	Number Tested	Number Positive or Doubtful	Previous Rate per 1,000 Population Tested
O. P. C.-----	1,839	100	54.4	1,987	450	226.5
Durham-----	9,327	395	42.3	* 5,505	* 1,519	275.9
TOTAL-----	11,166	495	44.3	7,492	1,969	262.8

* Durham Clinic only.

The white rate in the rural area (O.P.C.) was significantly higher in 1943 than in 1941. The white rate in the urban area (Durham) was significantly lower. The colored rate in both the rural and urban areas was higher in 1943 than in 1941. There is an unexplained drop in both white and colored rates in 1942. A large enough percentage of the population was blood tested each year to make the results significant.

In an attempt to remove the bias in the prevalence study shown in Table III a study was made of the amount of syphilis, as shown by blood tests, in selective service inductees. The blood tests were made when each registrant was called up for preinduction examination. There was no voluntary selection. The entire male age group was examined. The results of this study are shown in Table IV.

TABLE IV

**Prevalence of Syphilis among Selective Service Inductees
as shown by Positive and Doubtful Serological Tests**

	1941				1942				1943			
	White		Colored		White		Colored		White		Colored	
	Number Tested	Prevalence Rate per 1,000 Tested	Number Tested	Prevalence Rate per 1,000 Tested	Number Tested	Prevalence Rate per 1,000 Tested	Number Tested	Prevalence Rate per 1,000 Tested	Number Tested	Prevalence Rate per 1,000 Tested	Number Tested	Prevalence Rate per 1,000 Tested
O. P. C. Health District-----	1,098	13.7	614	99.3	2,648	19.3	1,919	120.4	3,189	14.4	1,728	133.7
Durham-----	1,228	26.9	781	160.0	3,546	31.0	2,347	209.2	2,309	24.2	2,445	179.5
TOTAL-----	2,326	20.6	1,395	133.3	6,194	26.0	4,266	169.2	5,498	18.5	4,173	160.6

During the first two years there was an increase in the prevalence of syphilis among white inductees in both the rural (O.P.C.) and urban (Durham) areas of the study. In 1943, the rate was less in each area. This was probably due to the large increase in the younger men called up in 1943. The colored inductees in the rural areas have shown an increased prevalence of syphilis each year when called for examination. In Durham the amount of syphilis in the colored inductees increased markedly in 1942 over 1941 and then dropped somewhat in 1943 but did not return to the 1941 level. Which leads us to the conclusion that there is more syphilis than ever in our young men—particularly in the colored—and that it is being contracted at a younger age.

In a further attempt to learn what changes are taking place in the amount of syphilis in our population, an effort was made to secure a true random and unbiased sample of the population. North Carolina has a law requiring a serological test for syphilis for both parties before a license to marry may be granted. This gives a true cross section of the population of approximately the same age each year selected for biological reasons with no prejudice.

TABLE V

The Prevalence of Syphilis Among Applicants for Marriage License in the O.P.C. Health District by Serological Tests

	White						Colored					
	Male			Female			Male			Female		
	No. Tested	No. Pos.	% Pos.	No. Tested	No. Pos.	% Pos.	No. Tested	No. Pos.	% Pos.	No. Tested	No. Pos.	% Pos.
1941.....	403	8	2.0	355	4	1.1	140	21	15.0	160	13	8.1
1942.....	228	3	1.3	255	1	0.4	130	10	7.7	131	17	13.0
1943.....	209	2	0.96	233	7	3.0	108	15	13.9	118	21	17.8

A study of this group is shown in Table V. The prevalence rate in the white males has shown a study decline for the three years. A less marked decline was noted in the colored males. The white and colored females both have shown a significant rise in the period. If a conclusion may be reached from such data it must be that there is a very definite increase in the amount of syphilis in the young women in our population.

The law requiring a pregnant woman to have a serological test for syphilis during each pregnancy offers a sample of our population selected for such physiological reasons—with no bias for color, economic status, religion, or residence. The changes that are taking place in this group offer a fair index of what is taking place in the population as a whole.

Table VI shows the result of a study on this group in the O.P.C. Health District.

TABLE VI

Prevalence of Syphilis among Pregnant Women as shown by Results of Serological Tests for Syphilis Taken During their Prenatal Period. O.P.C. Health District, 1941-1943

	White			Colored		
	Number Tested	Number Positive and Doubtful	% of Those Tested C W	Number Tested	Number Positive and Doubtful	% of Those Tested C W
1941-----	407	3	0.7	316	25	7.9
1942-----	352	1	0.3	301	20	6.6
1943-----	362	4	1.1	307	26	8.5

The number tested was small so the prevalence rates are not too reliable. However, it is noted that the percentage of pregnant women tested both white and colored and found to have syphilis was higher in 1943 than in 1941.

These prevalence studies are carried on and will be reported in much greater detail than shown in the above tables.

Epidemiological Investigation:

The contacts of patients with syphilis constitute a group subject to greatest risk of contracting the disease. This is particularly true of the sexual contacts of cases of early syphilis. Where facilities and personnel are limited this group of persons should produce the greatest number of new cases with the least effort on the part of the epidemiological worker. Particular attention has been paid to the use of this method in the study area.

With the changing emphasis on treatment from weekly or biweekly treatments in the health department treatment clinics to intensive therapy—particularly penicillin—the two Rapid Treatment Centers in North Carolina we must look forward to the day when our clinics will all be diagnostic and case finding clinics with special emphasis on epidemiology. The field worker will spend his time locating contacts and seeing that they are examined rather than running down patients who have lapsed in their treatment. To insure hospitalization of all patients with newly diagnosed syphilis the present emergency Rapid Treatment Hospitals must be made permanent institutions. To insure the functioning of these hospitals to their full capacity epidemiological investigation of all patients must be developed into a perfect skill.

The results of epidemiological investigation in the O.P.C. Health District and the Durham Health Department for the period January 1, 1941-June 30, 1944 are shown in Table VII and VIII.

TABLE VII

**Result of Epidemiological Investigation of Sexual Contacts
Original Patients with Primary and Secondary Syphilis in the
O.P.C. Health District and Durham County, 1941-June
30, 1944**

	No. of Patients with Primary and Secondary Syphilis Interviewed	No. of Sexual Contacts Named per Patient Interviewed	No. of Sexual Contacts Examined per Patient Interviewed	No. of New Cases Admitted to Treat- ment as Result of Interviews		No. and % of Con- tacts Examined and Found to Have Syphilis		Percentage of Newly Admitted Cases with Infectious Syphilis
				Total	Infectious	No.	%	
O. P. C.	124	1.7	1.4	93	60	112	63	64.5
Durham	421	*2.8	1.2	240	176	430	81.9	81.7

* Of these 701 or 1.7 per patient interview lived within jurisdiction of health department.

TABLE VIII

**Results of Epidemiological Investigation of Sexual Contacts of
Patients with Early Latent Syphilis in O.P.C. Health District
and Durham County, January 1, 1941-June 30, 1944**

	No. of Patients with Early Latent Syphilis Interviewed	No. of Sexual Contacts Named per Patient Interviewed	No. of Sexual Contacts Examined per Patient Interviewed	No. of New Cases Admitted to Treat- ment as Result of Interviews		No. and % of Con- tacts Examined and Found to Have Syphilis		Percentage of Newly Admitted Cases with Infectious Syphilis
				Total	Infectious	No.	%	
O. P. C.	310	1.0	0.91	99	53	173	61.6	84.8
Durham	340	2.5	*0.65	76	53	145	56.8	69.7

* Of these 432 or 1.6 per patient interview lived within jurisdiction of the health department.

Since each case of syphilis must originate from another case the epidemiological investigation as a minimum should find at least one new case for each original patient interviewed. That should be the minimum standard of attainment. In all reported epidemiological investigation of sufficient size to have significance this standard has never been reached.

As a result of contact investigation of 543 patients with Primary and Secondary Syphilis in the study area in the 42 month period, 333 previously undiagnosed cases of syphilis were admitted to clinic.

Sixty-five per cent of these had infectious syphilis. This record is far from ideal but it does give an indication of what can be accomplished by this case finding method. Where else can the examination of a group of people yield 65 per cent previously undiagnosed cases of syphilis?

Table VIII is shown to emphasize the value of epidemiological investigation of cases of early latent syphilis as a control measure. While the examination of 503 sexual contacts of cases of early latent syphilis yielded only 175 previously undiagnosed cases of syphilis, 77.7 per

It is only by finding the case of infectious syphilis and rendering cent of these new cases were found to be potentially infectious. him non-infectious before he has time or opportunity to spread the disease and by epidemiological investigation of his contacts that we can ever hope to control the spread of syphilis.

DIVISION OF VITAL STATISTICS

The work of the Division of Vital Statistics has more than doubled since the start of the war. This is due largely to the increase in requests for birth certificates as proof of citizenship, age, and dependency. In addition to filling these requests, the Division of Vital Statistics has recorded approximately one-quarter of a million current birth, death, and stillbirth certificates and over 125,000 delayed records of birth during this biennium.

While meeting the emergency demands for birth certificates, it was necessary to carry on the basic task of recording births and deaths as they occurred. There are over 900 local registration districts in the State with a local registrar for each district who send certificates to the Bureau of Vital Statistics each month and whose registration work is supervised. Each city, each incorporated town, and each township constitute a registration district with a registrar appointed by local authorities for a term of four years. Frequent resignations during the biennium have required the instruction of many new registrars in the performance of their duties. The State Board of Health has authority to consolidate registration districts, even to the extent of consolidating all districts in a county. Consolidations have been made frequently in the case of small incorporated towns, the town being consolidated with the township district. When it is considered advisable for reasons of economy or efficiency in registration, the districts of an entire county are consolidated and the health officer appointed local registrar. Twenty-two local health officers have been appointed registrars for their entire districts. Upon the appointment of the health officer as local registrar for an entire county, the fees accruing from vital statistics registration service are used by the local board of health for health service.

North Carolina began state-wide registration of births, deaths, and stillbirths October 1, 1913. No official certificates were recorded at time of birth for persons born prior to this date with the exception of a few earlier records filed by the larger towns; and in the early days of registration, many births were unreported. The necessity of submitting proof of American citizenship for obtaining employment in war industries, establishing age for enlistment in the Armed Forces, and the non-existence of such an official record for these individuals born in North Carolina before state-wide registration or those born since whose births were unregistered, caused the enactment of two amendments in 1941 that provided for the delayed registration of a birth record. Under the provisions of one of these Acts, a delayed record may be filed by submitting the required evidence to the register of deeds of county of birth. The register of deeds completes a certificate in duplicate, retaining one copy on file in his office and filing the other with the Bureau of Vital Statistics. The second amendment provided for registration by judgment. An amendment to the vital statistics law by the General Assembly of 1943 provided for the filing

of copies of birth and death certificates monthly with the registers of deeds. Heretofore, local registrars had filed copies of these records with the registers of deeds following the end of the year.

During 1943 more than 57,000 delayed records of unregistered births were placed on file with the Division of Vital Statistics. The majority of these were records of births that occurred before the enactment of the vital statistics law in 1913, although a considerable number were for births that occurred since but were not registered at the time by the attending physician or midwife. The records were needed in most cases for establishment of citizenship or proof of age for enlistment in the Army or Navy or for employment in war industries.

All certificates of birth, death, and stillbirth are processed by the registration section. This processing includes receiving the certificates from the local registrars, crediting them with the proper number of certificates, checking the certificates against reports of coffin dealers, and confidential reports, and the follow-up work in connection with this; checking the completeness of all certificates received, querying all those which are incomplete, and making the necessary additions and corrections; systematically arranging the certificates for binding; and coding the information for indexing and for tabulation purposes. Many of the certificates received by the Bureau of Vital Statistics are incomplete or obviously in error, and it is necessary to secure by questionnaire their completion, or information that will enable the Bureau to make the correction. Over 16,000 queries were mailed for this purpose during 1941. It was necessary to send two or even three queries on many certificates. Approximately 16,000 birth certificates were received which did not contain the child's name or contained an incorrect name. The name or the correction is ultimately reported on a supplemental report for approximately 12,000 of these certificates. Of the death certificates, approximately 5,000 were corrected for cause of death.

In addition to processing all certificates, the registration section mails notifications of birth registration to parents, and issues verifications and certified copies of birth and death records. Birth records are obtained for use in proving place and time of birth and parentage. The place of birth as recorded on the birth certificate may be used to establish citizenship or place of residence. Federal legislation prohibiting the employment of aliens in industries engaged in and vital to the defense of the United States, and the great increase in these industries because of the war created a great demand for birth certificates. The time of birth as shown on the birth certificate may be used to prove age to obtain admission to school, to establish the right to work, to qualify for Civil Service examination, to establish the right to vote, to determine legal responsibility, or to prove qualification for or exemption from civic and military duty. Parentage, as stated in the birth certificate, is necessary to establish the right to inherit or bequeath property, to establish identity, or to prove parents have dependent children. The most frequent uses of birth certificates issued by the Bureau of Vital Statistics are for establishing citizenship for

employment, for establishing citizenship and age for enlistment in the Armed Forces, and for proving parents have dependent children.

Death certificates are used by individuals to furnish evidence in court, to secure pensions or the payment of life insurance, to establish titles and right of inheritance, or to give homeseekers a guide in selecting safe and healthful homes.

More than 55,000 requests for certificates were received during the last twelve months of the biennium, and certified copies or verifications issued, or their presence and location cited, a substantial increase over any previous year on record. This does not include the large number of searches made when no certificates were found, or the searches made in checking registration for duplication. Of the above number 28,153 were made in furnishing certified copies of births that were filed at time of birth on or after October 1, 1913, 2,200 for certified copies of delayed death certificates. The number of certified copies of birth and death certificates issued during the past year were more than for any year on record. The requests for certified copies rose sharply during the later part of 1940 and continued the upward trend during 1941 and 1942 and has remained at a high level since.

Several methods were used to increase registration. Monthly reports of coffins sold, where the undertaker did not handle the body, were checked as were confidential reports of unfilled certificates received from local registrars.

At the close of 1943, it was estimated that there were on file 2,530,000 certificates of birth; 986,000 of death; and 90,000 of stillbirth. This makes a grand total of 3,606,000 records. All birth and death records are indexed and are kept in a fire-proof vault.

The data contained on birth and death certificates are punched into cards. The cards are used for making an index and for making statistical tabulations. From these tabulations, special, monthly, and annual reports are prepared; rates, percentages, and ratios computed, and analysis made. The cards are run through a printing tabulator and a monthly index printed; and at the end of the year, final registers of births and deaths are printed.

For no year in the history of registration were there as many births recorded as during 1942 or 1943. In 1942 there were 90,056 births registered and 95,251 in 1943. The birth rate per 100,000 population was 24.6 in 1942 and 25.7 in 1943. The rates are higher than for any year since 1929. The birth rate trend was downward from 1921 to 1939 when a rate of 22.3 was recorded. Each year in the past four has shown an increase over the previous year.

A few more deaths were recorded from all causes in 1943 than in 1942, there being 30,244 for the former year and 29,613 for the latter. This gave death rates of 8.2 per 1,000 population for 1943 and 8.1 for 1942. These are the lowest rates ever recorded by the Division of Vital Statistics.

When the specific causes of death are considered, it is noted that most of the infectious and contagious diseases accounted for fewer deaths in the present biennium than for the biennium before. Among the causes showing a significantly lower rate in 1943 than in 1942

are typhoid fever, diphtheria, tuberculosis, malaria, and diarrhea and enteritis. There were 70 deaths from diphtheria in 1942 and 56 in 1943. There were 89 deaths in 1941, 107 in 1940, and 170 in 1939. Tuberculosis caused 1,578 deaths in 1942 and 1,445 in 1943. There were 438 deaths from diarrhea and enteritis in children under two in 1943 as against 464 in 1942.

Diseases of the heart, apoplexy, and nephritis occupied first, second, and third places, respectively, in order of importance as causes of death. Cancer deaths increased from seventh place in 1939 to fourth place in 1943. The pneumonias dropped from fourth place in 1939 to seventh place in 1943.

The Eight Leading Causes of Death by Order of Importance:

<i>Rank</i>	<i>Cause of Death</i>	<i>Number</i>	<i>Per Cent of All Deaths</i>
	All Causes	30,224	100.0
1.	Diseases of the heart.....	6,216	20.5
2.	Apoplexy	2,951	9.8
3.	Nephritis	2,874	9.5
4.	Cancer	2,419	8.0
5.	Accidental deaths	2,370	7.8
6.	Disease peculiar to infancy.....	1,984	6.5
7.	Pneumonias	1,666	5.5
8.	Tuberculosis	1,459	4.8

These eight causes accounted for 72 per cent of the 30,224 deaths recorded, and represents a noticeable change in the principal causes of death since 1914, the first complete year of registration. In 1914 the leading causes of death in order of their rank were tuberculosis, pneumonia, diarrhea and enteritis, disease of the heart, early infancy, and intracranial lesions.

It is important, both to individuals and to health organizations, that all births and deaths be recorded. A sound public health program must be based upon a careful study of vital statistics and its success or failure can only be measured in the same way. Every health officer should possess a working knowledge of vital statistics of at least the area under his supervision. Facts should be substituted for personal opinions and hearsay; vital statistics should be studied without permitting preconceived notions and prejudices to interfere with a correct interpretation of the facts. That vital statistics indicate the true health conditions, it is essential that registration be complete.

DIVISION OF LOCAL HEALTH ADMINISTRATION

With the beginning of the new fiscal year 1942-43 the following counties organized full-time health services:

July 1, 1942—Montgomery County (joined with Anson County, forming a District Health Department.)
Pasquotank County (organized its own local health service.)

January 1943—Perquimans County (united with Pasquotank County in a District Health Department.)

July 1, 1943—Camden County (joined with Pasquotank and Perquimans, forming the Pasquotank-Perquimans-Camden District Health Department.)

March 1, 1943—Scotland County (established a full-time health unit of its own, however due to loss of the health officer, it was necessary for Scotland County to join Richmond County in a District Health Service effective March 1, 1944.)

In addition to the formation of these new health services and the consolidations enumerated, because of manpower shortage, Edgecombe and Halifax counties organized a district health service as of July 1, 1942 and Northampton and Hertford counties united in a district health service as of the same date. Gates County, from the Hertford-Gates District, was added to the Bertie-Chowan District forming the Bertie-Chowan-Gates District Health Department.

With the inauguration of these health services, as of June 30, 1944 full-time health service is now operative in 88 of the 100 counties in North Carolina and full-time health service has been maintained in city health departments as well. As of June 30, 1944 there were 65 full-time local health departments in North Carolina, 41 of which are County Health Departments, 18 District Health Departments, and 6 City Health Departments. Health service is provided in 47 counties by the 18 District Health Departments. The size of these districts varies from 2 to 5 counties in each district. During the biennium, 7 additional counties established a full-time local health service either county or district.

There are employed at the present time in the 88 counties and 5 city health departments (with the exception of Winston-Salem) a total of seven hundred eighty-seven (787) full-time workers. Of this number 64 are health officers, 8 are assistant health officers, 8 are epidemiologists and 2 are dentists. There are 14 supervising nurses, 3 assistant supervising nurses and 324 staff nurses; 122 sanitarians, engineers and veterinarians are employed and 45 follow-up workers. The other personnel consists of 21 laboratory technicians, 2 Public Health Educators, 1 nutritionist, and 173 clerks.

During the biennium the consultant nursing staff was enlarged by the addition of Mrs. Louise P. East on July 1, 1942 and Miss Anne Lamb in September 1942. Miss Mary Louise Hewitt joined the staff in November 1942 replacing Miss Theodosia Flud, who resigned at that time. Dr. Robert F. Young, who had been associated with the division for nearly two years resigned his position at the end of February 1944.

During the biennium, because of the continuation of the war, the War Activities District Health Service inaugurated in 1941-42 has been continued to aid the local departments which have felt the principal impact of the war effort. The counties, which have been assisted with additional personnel from the War Activities budget and lend-lease personnel from the U. S. Public Health Service, are: Carteret, Craven, Cumberland, Davidson, Durham, Granville, Lenoir, Moore, New Hanover, Onslow-Pender, Pasquotank - Perquimans - Camden, Richmond-Scotland, Union, Wayne, and the Rapid Treatment Center at Charlotte. This additional service has enabled these departments to carry on with the increased load caused by the war effort.

For the first fiscal year of the biennium, the Division of County Health Work continued to function as it had for a number of years and during this same period all activities pertaining to venereal disease control were carried on by the Division of Epidemiology. Effective as of September 1, 1943 there was a consolidation of the former work of the Division of County Health Work and the venereal disease control activities of the Division of Epidemiology in a new division entitled "Division of Local Health Administration." The state was divided into three districts. Dr. J. C. Knox became Director of District No. 1, which embraced the Eastern part of the State. Dr. R. E. Fox became Director of District No. 2, which included the Central third of the State, and Dr. J. R. Hege became Director of District No. 3, which comprised the western part of the State. Assigned to each of these district offices were two consultant public health nurses, a sanitary engineer, two sanitary inspectors and public health educators. This Division of Local Health Administration has continued to function in the capacity outlined for the remainder of the biennium.

In connection with the venereal disease control program, Dr. Robert D. Wright, of the U. S. Public Health Service Field Staff, remained on duty with the Division of Epidemiology as Venereal Disease Consultant until he was recalled by the Service in September 1943. From that time on the activities of venereal disease control were handled by the three District Directors of Local Health Administration.

In connection with the war effort, there were established in 1943 in North Carolina, through the coöperation of the U. S. Public Health Service and the Federal Works Agency, two Rapid Treatment Centers for the control of the venereal diseases. The one located in Charlotte, N. C. began receiving patients on August 13, 1943. The one located in Durham received its first patients on November 16, 1943. The purpose in establishing these centers was to bring about a more rapid method of treating venereal disease cases and the control of the infection as it related to the armed forces and the war effort. From

the time of the establishment of the Center in Charlotte until June 30, 1944 a total of 1,821 patients having venereal disease were admitted and treated. From the time the Durham Center was opened until June 30, 1944 a total of 1,080 patients were treated, making a total of 2,901 patients treated at the two Centers until June 30, 1944. The average stay of patients at these centers has been from 10 to 23 days depending on the type of treatment used. It has long been realized in the control of the venereal diseases, especially syphilis, that it has been very difficult to get patients who are infected with this disease to continue their treatment on the schedule of one treatment per week for the period of 52 to 70 weeks required to cure these cases. Particularly is this true during a war period when people are moving from one place to another. Therefore, these centers were established to treat the early infectious cases of all venereal diseases especially syphilis. More than 90 per cent of the patients admitted to these centers have had syphilis.

The two centers established in North Carolina were two of more than 40 which have been established within the United States during this period. It has been interesting to note that the two centers in North Carolina have been used more extensively than any of the other centers established in the United States. The cooperation of the local health workers, the patients, and the public have made this possible. In this brief period under the various forms of intensive treatment used the patient is not only rendered non-infectious, but has his disease cured equally as well as is possible in the 12 to 18 months' courses which have been followed under the old plan.

Local clinics for the diagnosis and treatment of venereal disease have been continued in each of the 88 counties having a full-time local health service. This is done through 258 clinics holding 354 clinic sessions each week. The patients referred to the Rapid Treatment Centers came from these 258 clinics and have reduced materially the clinic load in the local health department clinics. This gives the local department more time to spend on epidemiological investigations of venereal infections and has resulted in more cases being brought under treatment than would have been the case if rapid treatment facilities were not available.

Many selective service registrants found to have a positive blood serology have been referred to these rapid treatment facilities for treatment. Upon the completion of the treatment, they have been accepted by the army and are now serving in the armed forces of our country.

The program of furnishing drugs for the treatment of both syphilis and gonorrhea, not only to local health department clinics but to private physicians in the state for the treatment of patients who were unable to pay, has been continued by the State Board of Health.

In connection with the educational program in venereal disease control, it should be noted that 40 motion picture projectors have been placed in local health units in addition to such projectors as may be owned by other local health departments. Twelve films on venereal

disease are provided, with 75 copies of these films in circulation through our film library.

As diagnostic aids in venereal disease control 55 microscopes have been purchased and placed in local health departments and a total of 40 fluoroscopes, these being in addition to those owned by local health departments.

Through the Public Health Educators, headed by Dr. Lucy Morgan, the Public Health Educational Program has been introduced in nine of the local health departments. This program has proven its worth not only with reference to venereal disease control, but with reference to the general health education program in the communities in which it has been introduced.

Pertinent data relative to the financial cost of local health departments is shown in Table No. 1-A and in Table No. 1-B.

The statistical record of work performed by types of services during the biennium in the 88 counties and 5 cities operating on a full-time health service on June 30, 1944 is shown in Table No. 2.

TABLE NO. 1-A—DATA ON FULL-TIME COUNTY, DISTRICT, AND

COUNTY, CITY OR DISTRICT	1940 Population	Date Organized	Total Budget	
			Amount	Per Capita
Alamance.....	57,427	1938	\$ 21,675.10	.377
Alleghany-Ashe-Watauga.....	49,119	1935-38	18,097.61	.368
Anson-Montgomery.....	44,723	1938-42	40,105.72	.897
Avery-Yancey.....	30,763	1935	14,683.05	.477
Beaufort.....	36,431	1923	13,426.18	.369
Bertie-Chowan-Gates.....	47,833	1934-37-40	26,620.00	.557
Bladen.....	27,156	1921	15,830.00	.583
Buncombe Ex-A.....	57,445	1913	17,357.50	.302
Burke-Caldwell.....	74,410	1937	22,230.80	.299
Cabarrus.....	59,393	1919	41,921.00	.706
Carteret.....	18,284	1941	16,507.59	.903
Catawba-Lincoln.....	75,840	1938-40	31,785.80	.419
Cherokee-Clay-Graham.....	31,636	1937	23,634.52	.747
Cleveland.....	58,055	1938	23,194.34	.400
Columbus.....	45,663	1921	18,613.34	.408
Craven.....	31,298	1921	26,191.92	.837
Cumberland.....	59,320	1919	47,979.28	.809
Currituck-Dare.....	12,750	1937-38	14,260.84	1.118
Davidson.....	53,377	1917	18,014.00	.337
Duplin.....	39,739	1934	16,948.00	.426
Durham.....	80,244	1913	115,513.74	1.440
Edgecombe-Halifax Ex-RM.....	93,274	1919	54,255.11	.582
Forsyth-Stokes-Yadkin-Davie Ex-WS.....	104,882	1913-31-38	97,363.68	.928
Franklin.....	30,382	1930	5,270.00	.173
Gaston.....	87,531	1928	36,362.08	.415
Granville.....	29,344	1919	23,678.23	.807
Greene.....	18,548	1937	11,332.58	.611
Guilford Ex-G and HP.....	56,102	1911	19,780.00	.353
Harnett.....	44,239	1936	19,804.84	.448
Haywood-Jackson-Macon-Swain-Transylvania.....	94,468	1934-36-37	44,463.00	.471
Hyde-Tyrrell-Washington.....	25,739	1937	22,044.08	.856
Iredell.....	50,424	1942	17,000.00	.337
Johnston.....	63,798	1937	16,959.85	.266
Lenoir.....	41,211	1917	17,590.00	.427
Martin.....	26,111	1938	15,491.76	.593
Mecklenburg Ex-C.....	50,927	1918	19,645.00	.386
Moore.....	30,969	1928	20,086.00	.649
Nash Ex-RM.....	42,440	1915	20,100.73	.474
New Hanover.....	47,935	1913	66,858.54	1.395
Northampton-Hertford.....	47,651	1917-36	40,425.73	.848
Onslow-Pender.....	35,649	1941	25,062.14	.703
Orange-Person-Chatham.....	72,827	1935-37	59,195.14	.813
Pasquotank-Perquimans.....	30,341	1942-43	18,810.00	.620
Pitt.....	61,244	1917	28,303.00	.462
Randolph.....	44,554	1927	16,991.27	.381
Richmond.....	36,810	1924	17,564.44	.477
Robeson.....	76,860	1912	31,498.50	.410
Rockingham.....	57,898	1940	21,186.79	.366
Rowan.....	69,206	1918	32,342.00	.467
Rutherford-Polk.....	57,451	1924-38	30,486.35	.531
Sampson.....	47,440	1913	20,675.12	.436
Scotland (Eff. 3-1-43).....	23,232	1943	5,198.67	.224

CITY HEALTH SERVICES—NORTH CAROLINA—FISCAL YEAR 1942-43

Source of Funds and Amounts						Full-Time Personnel					
State Allotment	Per Capita	Local Appropriation	Per Capita	Other Agencies	Per Capita	Health Officer	Other Med. Officer	PHN	Sant.	Clerk Other	Dent. Wks.
\$ 1,800.00	.031	\$ 10,887.10	.190	\$ 8,988.00	.157	1	-----	3	fu 2	2	20
4,320.00	.088	5,677.61	.116	8,100.00	.165	1	-----	3	1	3	31
1,800.00	.040	13,564.05	.303	24,741.67	.553	1	e 1	7	fu 4	3	40
2,720.00	.088	2,955.55	.096	9,007.50	.293	1	-----	2	1	2	30
1,800.00	.049	6,733.68	.185	4,892.50	.134	1	-----	2	fu 2	1	16
5,100.00	.107	9,607.00	.201	11,913.00	.249	1	-----	5	fu 2	3	37
1,440.00	.053	5,490.00	.202	8,900.00	.328	1	-----	2	fu 2	2	-----
1,800.00	.031	14,695.00	.256	862.50	.015	1	-----	2	2	2	36
3,600.00	.048	11,424.47	.154	7,206.33	.097	1	-----	2	fu 3	2	30
1,800.00	.030	26,261.00	.442	13,860.00	.233	1	e 1 s	8	fu 4	2	32
1,800.00	.098	8,663.59	.474	6,044.00	.331	1	-----	3	1	2	20
3,600.00	.047	16,289.98	.215	11,895.82	.157	2	-----	3	fu 4	3	46
3,300.00	.104	7,564.52	.239	12,770.00	.404	1	-----	4	2	3	30
1,800.00	.031	10,450.51	.180	10,943.83	.189	1	-----	4	fu 2	2	20
1,440.00	.032	8,463.34	.185	8,710.00	.191	1	-----	3	1	2	20
1,800.00	.058	12,028.92	.384	12,363.00	.395	1	-----	4	fu 3	3	13
1,800.00	.030	25,497.28	.430	20,682.00	.349	1	e 1 s	8	fu 4	t 5	25
3,600.00	.282	5,468.70	.429	5,192.14	.407	1	-----	2	1	2	15
1,620.00	.030	10,424.00	.195	5,960.00	.112	1	-----	3	1	1	20
1,440.00	.036	8,230.00	.207	7,288.00	.183	1	-----	2	fu 2	1	20
1,800.00	.022	76,659.74	.955	37,054.00	.462	2	e 1 s	18	fu 9	d 12	30
3,600.00	.039	30,569.11	.328	20,086.00	.215	1	-----	s 10	fu 5	4	40
5,400.00	.051	56,223.68	.536	35,740.00	.341	2	e 1 s	20	fu 5	7	30
1,440.00	.047	3,830.00	.126	-----	-----	1	-----	1	-----	1	-----
1,800.00	.021	24,222.08	.277	10,340.00	.118	1	e 1	7	fu 2	2	20
1,800.00	.061	11,446.23	.390	10,432.00	.356	1	-----	3	fu 2	b 3	20
1,620.00	.087	5,312.58	.286	4,400.00	.237	1	-----	2	1	1	13
1,800.00	.032	16,300.00	.291	1,680.00	.030	1	-----	3	2	1	40
1,800.00	.041	11,576.14	.262	6,428.70	.145	1	-----	4	1	1	20
9,000.00	.095	14,003.00	.148	21,460.00	.227	2	-----	s 8	2	b 6	63
5,400.00	.210	6,589.95	.256	10,054.13	.391	1	-----	3	1	3	28
1,800.00	.036	9,000.00	.178	6,200.00	.123	1	-----	2	1	2	20
1,800.00	.028	8,393.85	.132	6,766.00	.106	1	-----	2	1	1	20
1,620.00	.039	9,430.00	.229	6,540.00	.159	1	-----	3	fu 2	2	-----
1,800.00	.069	7,917.09	.303	5,774.67	.221	1	-----	2	1	1	20
1,800.00	.035	15,745.00	.309	2,100.00	.041	1	-----	3	2	d 1	-----
1,620.00	.052	8,796.00	.284	9,670.00	.312	1	-----	4	1	1	20
1,800.00	.042	9,960.73	.235	8,340.00	.197	1	-----	3	fu 2	1	20
1,800.00	.038	49,258.54	1.028	15,800.00	.330	1	-----	11	fu 9	bt 8	20
3,240.00	.068	11,954.57	.252	25,201.16	.529	1	-----	9	fu 2	3	13
4,200.00	.118	13,360.48	.375	7,501.66	.210	1	-----	4	fu 3	3	20
6,000.00	.052	16,021.14	.220	37,174.00	.510	2	-----	s 10	fu 5	5	41
-----	-----	8,500.00	.280	10,310.00	.340	1	-----	4	fu 3	3	19
1,800.00	.029	15,513.00	.253	10,990.00	.179	1	-----	5	fu 3	2	26
1,440.00	.032	8,975.27	.201	6,576.00	.148	1	-----	3	1	1	30
1,620.00	.044	10,034.44	.273	5,910.00	.161	1	-----	2	fu 3	2	20
1,800.00	.023	15,153.00	.198	14,515.50	.189	1	-----	s 6	fu 3	3	-----
1,800.00	.031	11,222.79	.194	8,164.00	.141	1	-----	3	2	1	30
1,800.00	.026	19,852.00	.287	10,690.00	.154	1	-----	s 6	fu 2	2	34
3,600.00	.063	9,519.18	.166	17,367.17	.302	1	-----	s 6	fu 2	2	30
1,620.00	.034	8,705.12	.183	10,350.00	.218	1	-----	4	1	2	20
-----	-----	2,106.67	.091	3,092.00	.133	1	-----	2	fu 2	1	-----

TABLE NO. 1-A—Continued

COUNTY, CITY OR DISTRICT	1940 Population	Date Organized	Total Budget	
			Amount	Per Capita
Stanly.....	32,834	1937	\$ 16,764.38	.511
Surry.....	41,783	1919	19,360.00	.463
Union.....	39,097	1938	20,452.98	.523
Vance.....	29,961	1920	15,693.81	.524
Wake.....	109,544	1918	72,030.07	.658
Wayne.....	58,328	1920	37,829.25	.649
Wilkes.....	43,003	1920	12,543.25	.292
Wilson.....	50,219	1916	20,563.89	.410
TOTALS.....	2,995,162	-----	\$1,675,672.59	.559
Asheville.....	51,310	1923	\$ 78,368.00	1.527
Greensboro.....	59,319	1923	64,867.00	1.094
High Point.....	38,495	1937	35,101.50	.917
Rocky Mount.....	25,568	-----	31,315.00	1.225
TOTALS.....	174,692	-----	\$ 209,851.50	1.201
GRAND TOTALS.....	3,169,854	-----	\$1,885,524.09	.595

TABLE NO. 1-A—Continued

Source of Funds and Amounts						Full-Time Personnel					
State Allotment	Per Capita	Local Appropriation	Per Capita	Other Agencies	Per Capita	Health Officer	Other Med. Officer	PHN	Sant.	Clerk Other	Den. Wks.
\$ 1,800.00	.055	\$ 9,014.38	.275	\$ 5,950.00	.181	1	-----	3	1	1	20
1,620.00	.039	9,640.00	.231	8,100.00	.194	1	-----	3	fu 2	2	-----
1,800.00	.046	8,122.98	.208	10,530.00	.269	1	-----	3	fu 2	2	20
1,320.00	.044	7,155.81	.239	7,218.00	.241	1	-----	2	fu 2	1	20
1,800.00	.016	50,939.90	.465	19,290.17	.176	1	-----	s 9	fu 6	db 6	-----
1,800.00	.031	22,539.25	.386	13,490.00	.231	1	-----	s 7	fu 3	3	20
1,440.00	.033	5,699.75	.133	5,403.50	.126	1	-----	2	1	1	-----
1,620.00	.032	12,978.89	.258	5,985.00	.119	1	-----	3	2	2	-----
\$ 140,000.00	.047	\$572,678.64	.291	\$662,993.95	.221	65	7	277	144	153	1,288
\$-----	-----	\$ 56,589.00	1.103	\$ 21,779.00	.424	1	-----	s 13	fu 5	b 7	36
-----	-----	43,892.00	.740	20,975.00	.354	1	e 1	s 10	fu 5	b 1 7	-----
-----	-----	25,825.00	.671	9,476.50	.246	1	-----	7	2	b 2	26
-----	-----	24,457.00	.957	6,858.00	.268	1	-----	5	fu 3	b 3	20
\$-----	-----	\$150,763.00	.863	\$ 59,088.50	.338	4	1	35	15	19	82
\$ 140,000.00	.044	\$1,023,441.64	.323	\$722,082.45	.228	69	8	312	159	172	1,370

TABLE NO. 1-B—DATA ON FULL-TIME COUNTY, DISTRICT, AND

COUNTY, CITY OR DISTRICT	1940 Population	Date Organized	Total Budget	
			Amount	Per Capita
Alamance.....	57,427	1938	\$ 24,114.00	.419
Alleghany-Ashe-Watauga.....	49,119	1935-38	19,003.56	.387
Anson-Montgomery.....	44,723	1938-42	27,538.39	.616
Avery-Yancey.....	30,763	1935	14,894.65	.484
Beaufort.....	36,431	1923	15,612.84	.429
Bertie-Chowan-Gates.....	47,833	1934-36-40	28,058.00	.587
Bladen.....	27,156	1921	14,930.00	.550
Buncombe Ex-A.....	57,445	1913	18,415.00	.320
Burke-Caldwell.....	74,410	1937	22,715.00	.305
Cabarrus.....	59,393	1919	47,413.65	.798
Carteret.....	18,284	1941	17,432.50	.953
Catawba-Lincoln.....	75,840	1938-40	31,874.32	.420
Cherokee-Clay-Graham.....	31,636	1937	25,380.76	.802
Cleveland.....	58,055	1938	25,390.79	.437
Columbus.....	45,663	1921	17,605.00	.386
Craven.....	31,298	1921	28,308.19	.905
Cumberland.....	59,320	1919	51,626.42	.870
Currituck-Dare.....	12,750	1937-38	16,049.36	1.259
Davidson.....	53,377	1917	19,574.00	.367
Duplin.....	39,739	1934	17,120.00	.431
Durham.....	80,244	1913	123,883.02	1.544
Edgecombe-Halifax Ex-RM.....	93,274	1919	58,752.47	.630
Forsyth-Stokes-Yadkin-Davie Ex-WS.....	104,882	1913-31-38	101,853.71	.971
Franklin.....	30,382	1930	10,088.00	.332
Gaston.....	87,531	1928	39,272.08	.449
Granville.....	29,344	1919	23,980.46	.817
Greene.....	18,548	1937	16,329.26	.880
Guilford Ex-G and HP.....	56,102	1911	20,120.00	.359
Harnett.....	44,239	1936	21,622.00	.489
Haywood-Jackson-Macon-Swain-Transylvania.....	94,468	1934-36-37	45,130.65	.478
Hyde-Tyrrell-Washington.....	25,739	1937	23,695.96	.921
Iredell.....	50,424	1942	18,595.43	.369
Johnston.....	63,798	1937	16,252.83	.255
Lenoir.....	41,211	1917	29,320.00	.711
Martin.....	26,111	1938	16,793.72	.643
Mecklenburg Ex-C.....	50,927	1918	20,040.00	.393
Moore-Hoke.....	45,906	1928-43	30,860.00	.672
Nash Ex-RM.....	42,440	1915	22,820.00	.538
New Hanover.....	47,935	1913	75,941.34	1.584
Northampton-Hertford.....	47,651	1917-36	43,862.30	.920
Onslow-Pender.....	35,649	1941	27,551.06	.773
Orange-Person-Chatham.....	72,827	1935-37	63,226.80	.868
Pasquotank-Perquimans-Camden.....	35,781	1942-43-43	30,338.08	.848
Pitt.....	61,244	1917	29,086.00	.475
Randolph.....	44,554	1927	18,738.87	.421
Richmond.....	36,810	1924	19,393.37	.527
Robeson.....	76,860	1912	27,477.00	.357
Rockingham.....	57,898	1940	22,487.71	.388
Rowan.....	69,206	1918	32,480.00	.469
Rutherford-Polk.....	57,451	1924-38	32,365.15	.562
Sampson.....	47,440	1913	22,059.09	.465
Scotland.....	23,232	1943	14,698.95	.633

CITY HEALTH SERVICES—NORTH CAROLINA—FISCAL YEAR 1943-44

Source of Funds and Amounts						Full-Time Personnel					
State Allotment	Per Capita	Local Appropriation	Per Capita	Other Agencies	Per Capita	Health Officer	Other Med. Officer	PHN	Sant.	Clerk Other	Dent. Wks.
\$ 1,800.00	.031	\$ 12,594.00	.219	\$ 9,720.00	.169	1	-----	4	fu 2	2	20
4,320.00	.088	6,583.56	.134	8,100.00	.165	1	-----	3	1	3	34
3,600.00	.081	13,658.39	.305	10,280.00	.230	1	-----	5	1	3	40
2,720.00	.088	3,174.65	.103	9,000.00	.293	1	-----	2	1	2	30
1,800.00	.049	7,892.84	.217	5,920.00	.163	1	-----	2	fu 2	1	16
5,100.00	.107	10,730.00	.224	12,228.00	.256	1	-----	4	fu 2	3	37
1,440.00	.053	6,090.00	.224	7,400.00	.273	1	-----	2	fu 2	2	-----
1,800.00	.031	15,115.00	.263	1,500.00	.026	1	-----	3	2	1	36
3,600.00	.048	11,855.00	.159	7,260.00	.098	1	-----	2	fu 3	2	30
1,800.00	.030	29,253.65	.493	16,360.00	.275	1	e 1 s	8	fu 4	3	30
1,800.00	.098	9,342.50	.511	6,290.00	.344	1	-----	3	1	2	20
3,600.00	.047	17,114.32	.226	11,160.00	.147	1	-----	3	fu 4	4	46
3,300.00	.104	8,980.76	.284	13,100.00	.414	1	-----	4	2	3	30
1,800.00	.031	12,830.79	.221	10,760.00	.185	1	-----	4	fu 2	2	20
1,440.00	.032	9,420.00	.206	6,745.00	.148	1	-----	2	1	2	20
1,800.00	.058	14,238.19	.455	12,270.00	.392	1	-----	5	fu 2	3	13
1,800.00	.030	28,394.42	.479	21,432.00	.361	1	e 1 s	8	fu 4 t	5	25
3,600.00	.282	5,909.36	.464	6,540.00	.513	1	-----	2	1	2	15
1,620.00	.031	13,194.00	.247	4,760.00	.089	1	-----	2	2	1	20
1,440.00	.036	8,360.00	.211	7,320.00	.184	1	-----	2	fu 2	1	20
1,800.00	.023	88,134.02	1.098	33,949.00	.423	2	e 1 s	18	fu 8 bd	13	30
3,600.00	.038	33,826.47	.363	21,326.00	.229	1	----- s	11	fu 5	5	40
5,400.00	.051	59,633.71	.569	36,820.00	.351	2	e 1 s	20	fu 4 edb	9	32
1,440.00	.047	5,044.00	.166	3,604.00	.119	1	-----	1	1	1	-----
1,800.00	.021	27,072.08	.309	10,400.00	.119	1	e 1 s	7	fu 2	3	20
1,800.00	.061	13,594.46	.463	8,586.00	.293	1	-----	3	fu 2 b	3	20
1,620.00	.087	6,169.26	.333	8,540.00	.460	1	-----	2	1	1	20
1,800.00	.032	16,640.00	.297	1,680.00	.030	1	-----	3	2	1	40
1,800.00	.041	14,841.00	.335	4,981.00	.113	1	-----	3	1	1	20
9,000.00	.095	18,050.65	.191	18,080.00	.192	2	----- s	8	2 b	6	63
5,200.00	.202	9,795.96	.381	8,700.00	.338	1	-----	3	1	3	28
1,800.00	.036	10,595.43	.210	6,200.00	.123	1	-----	2	1	2	20
1,800.00	.028	8,552.83	.134	5,900.00	.093	1	-----	2	1	1	20
1,620.00	.039	15,900.00	.386	11,800.00	.286	1	----- s	5	fu 4	3	20
1,800.00	.069	9,167.72	.351	5,826.00	.223	1	-----	2	1	1	20
1,800.00	.035	16,140.00	.317	2,100.00	.041	1	-----	3	1 d	2	-----
3,040.00	.066	12,820.00	.279	15,000.00	.327	2	-----	5	2	3	30
1,800.00	.042	12,080.00	.285	8,940.00	.211	1	-----	3	fu 2	1	20
1,800.00	.037	56,541.34	1.180	17,600.00	.367	1	-----	11	fu 8 bt	9	20
3,440.00	.072	14,940.30	.313	25,482.00	.535	1	-----	9	fu 2	3	13
4,200.00	.118	13,921.06	.391	9,430.00	.264	1	-----	4	2	3	20
6,000.00	.082	17,165.14	.236	40,061.66	.550	2	----- s	12	fu 4	5	42
4,980.00	.139	14,678.08	.410	10,680.00	.299	1	e 1	6	fu 3	4	28
1,800.00	.029	16,196.00	.265	11,090.00	.181	1	-----	5	fu 3	2	26
1,440.00	.032	10,722.87	.241	6,576.00	.148	1	-----	3	1	1	30
1,620.00	.044	9,973.37	.271	7,800.00	.212	1	-----	4	fu 3	1	-----
1,800.00	.023	13,739.00	.179	11,938.00	.155	1	-----	4	fu 2	2	-----
1,800.00	.031	13,423.71	.232	7,264.00	.125	1	-----	2	2	1	30
1,800.00	.026	21,565.00	.111	9,115.00	.132	1	----- s	6	1	2	34
3,600.00	.063	11,121.15	.393	17,584.00	.306	1	----- s	6	fu 3	2	30
1,620.00	.034	9,969.09	.210	10,470.00	.221	1	-----	4	1	2	20
1,800.00	.077	7,378.95	.318	5,520.00	.238	1	-----	2	fu 2	1	16

TABLE NO. 1-B—Continued

COUNTY, CITY OR DISTRICT	1940 Population	Date Organized	Total Budget	
			Amount	Per Capita
Stanly.....	32,834	1937	\$ 18,475.52	.563
Surry.....	41,783	1919	21,280.00	.509
Union.....	39,097	1938	23,362.98	.597
Vance.....	29,961	1920	14,573.60	.486
Wake.....	109,544	1918	73,704.11	.673
Wayne.....	58,328	1920	43,034.00	.738
Wilkes.....	43,003	1920	13,389.01	.311
Wilson.....	50,219	1916	23,487.32	.467
TOTALS.....	3,015,539	-----	\$1,813,418.28	.601
Asheville.....	51,310	1923	\$ 85,991.80	1.676
Charlotte.....	100,899	1918	90,060.90	.892
Greensboro.....	59,319	1923	68,349.15	1.152
High Point.....	38,495	1937	39,061.00	1.015
Rocky Mount.....	25,568	-----	37,170.00	1.454
TOTALS.....	275,591	-----	\$ 320,632.85	1.163
GRAND TOTALS.....	3,291,130	-----	\$2,134,051.13	.649

e—Epidemiologist. s—Supervisory Nurse. fu—Follow-up Worker. d—Dentist. b—Bacteriologist.
t—Technician. ed—Health Educator. n—Nutritionist.

Included with the total personnel under Public Health Nurses, Sanitation Personnel, Clerks and Others, are the Clinic Nurses, Follow-up Workers, and Venereal Disease Clerks, respectively.

Ex—Exclusive of: A—Asheville. C—Charlotte. G—Greensboro. HP—High Point. RM—Rocky Mount. WS—Winston-Salem.

TABLE NO. 1-B—Continued

Source of Funds and Amounts						Full-Time Personnel					
State Allotment	Per Capita	Local Appropriation	Per Capita	Other Agencies	Per Capita	Health Officer	Other Med. Officer	PHN	Sant.	Clerk Other	Den. Wks.
\$ 1,800.00	.055	\$ 10,425.52	.318	\$ 3,250.00	.190	1	-----	3	1	1	14
1,620.00	.039	10,640.00	.254	9,020.00	.216	1	-----	3 fu	2	2	-----
1,800.00	.046	10,912.98	.279	10,650.00	.272	1	-----	3 fu	2	3	20
1,320.00	.044	7,250.60	.242	6,003.00	.200	1	-----	2 fu	2	1	20
1,800.00	.016	52,349.11	.478	19,555.00	.179	1	-----	s 10 fu	8	bi 8	-----
1,800.00	.031	24,924.00	.427	16,310.00	.280	1	-----	s 8 fu	3	n 4	20
1,440.00	.033	6,023.01	.140	5,926.00	.138	1	-----	2	1	1	-----
1,620.00	.032	14,627.32	.291	7,240.00	.144	1	-----	3	2	2	-----
\$ 150,000.00	.049	\$991,276.62	.329	\$672,141.66	.223	65	6	253	140	166	1,328
\$-----	-----	\$ 63,552.80	1.239	\$ 22,439.00	.437	1	-----	13 fu	7	b 8	29
-----	-----	70,570.90	.699	19,490.00	.193	3	e 1 s	23 fu	9	edt 12	-----
-----	-----	48,304.15	.814	20,045.00	.338	1	e 1 s	9 fu	5	b 7	-----
-----	-----	28,055.00	.730	10,976.00	.285	1	-----	8 fu	3	b 2	26
-----	-----	28,257.00	1.105	8,913.00	.349	1	-----	5 fu	3	b 4	20
\$-----	-----	\$238,769.85	.866	\$ 81,863.00	.297	7	2	58	27	33	75
\$ 150,000.00	.046	\$1,230,046.47	.374	\$754,004.66	.229	72	8	341	167	199	1,403

TABLE 2—STATE OF NORTH CAROLINA

Period July 1942 Through June 1944

	White	Colored	Indian	Total
A COMMUNICABLE DISEASE CONTROL:				
1 Admissions to service.....	39,594	4,812	132	44,538
2 Consultations with physicians.....	1,999	329	3	2,331
3 Diphtheria.....	4,482	738	9	5,229
4 Typhoid Fever and paratyphoid fever.....	687	430	-----	1,117
5 Scarlet fever.....	7,561	473	15	8,049
6 Smallpox.....	115	21	-----	136
7 Measles.....	24,318	2,393	81	26,792
8 Whooping cough.....	10,350	2,181	60	12,591
9A Miscellaneous diseases.....	10,949	1,529	15	12,493
9B Epidemiological investigative visits.....	5,979	1,273	9	7,261
10 Diphtheria.....	289	89	17	395
11 Typhoid fever and paratyphoid fever.....	53	49	-----	102
12 Scarlet fever.....	98	27	-----	125
13 Smallpox.....	10	14	-----	24
14 Other.....	528	83	-----	611
15 Smallpox.....	132,741	64,939	2,000	199,680
16 Diphtheria under 1 year.....	17,174	11,882	142	29,198
17 Diphtheria 1 year through 4 years.....	27,578	15,474	515	43,567
18 Diphtheria 5 years and over.....	48,429	26,270	711	75,410
19 Typhoid fever.....	287,782	144,269	2,039	434,090
20 Other.....	15,900	6,248	663	22,811
21 Public lectures and talks.....	405	63	-----	468
22 Attendance.....	14,991	4,029	-----	19,020
B VENEREAL DISEASE CONTROL:				
1 Admissions to medical service.....	10,536	62,500	129	73,165
2 Cases transferred to private phys.....	1,348	4,067	4	5,419
3 Clinic visits.....	195,747	1,400,376	3,348	1,599,471
4 Field visits.....	15,046	146,742	68	161,856
5A Visits for reports neg wass.....	37,425	55,143	681	93,249
5B Fluoroscopic exam.....	1,671	6,032	7	7,710
6 Public lectures and talks.....	313	209	1	523
7 Attendance.....	25,120	13,795	205	39,120
C TUBERCULOSIS CONTROL:				
1 Individuals admitted to medical service.....	26,143	20,746	165	47,054
2 Individuals admitted to nursing service.....	13,771	14,314	155	28,240
3 Physical examinations in clinics.....	12,017	8,581	38	20,636
4 X-ray examinations.....	12,701	7,726	200	20,627
5 Clinic visits.....	34,750	27,700	232	62,682
6 Visits to private physicians.....	927	486	6	1,419
7 Field nursing visits.....	33,028	37,674	292	71,194
8 Office nursing visits.....	3,119	1,996	8	5,123
9 Admissions to sanatoria.....	1,188	1,057	8	2,253
10A Tuberculin test over age 20.....	9,988	7,112	34	17,134
10B Fluoroscopic exam.....	26,832	24,851	63	51,746
11 Public lectures and talks.....	336	1,632	1	1,969
12 Attendance.....	38,664	12,427	80	51,171
D MATERNITY SERVICE:				
1 Cases admitted to antepartum med ser.....	4,575	21,534	235	26,344
2 Cases admitted to antepartum nursg ser.....	9,295	22,450	74	31,819
3 Visits by antepartum cases to med conf.....	10,788	47,942	403	59,133
4 Visits by antepartum cases to pri phys.....	2,232	1,393	18	3,643
5 Field nursg visits to antepartum cases.....	18,058	28,647	100	46,805
6 Office nursg visits by antepartum cases.....	6,077	28,985	37	35,099
7 Cases attended by nurses for delvry ser.....	235	401	2	631
8 Cases given postpartum medical exam.....	1,158	4,246	17	5,421

TABLE 2—Continued

	White	Colored	Indian	Total
D MATERNITY SERVICE—Continued:				
9 Cases given postpartum exm by pri phys.....	886	358	5	1,249
10 Cases admitted to postpartum nursg ser.....	9,018	14,016	40	23,164
11 Nursing visits to postpartum cases.....	18,203	27,087	57	45,347
12A Contraceptive admissions.....	2,846	3,260	31	6,137
12B Contraceptive visits.....	5,881	6,386	44	12,311
13 Midwives registered for formal instrctn.....	239	1,852	11	2,102
14 Midwife meetings.....	86	623	1	710
15 Attendance at meetings.....	360	3,363	11	3,734
16 Visits for midwife supervision.....	1,369	9,559	54	10,982
17 Other.....	268	1,452	34	1,754
18 Public lectures and talks.....	166	206	1	373
19 Attendance.....	2,920	2,159	-----	5,079
20 Enrollment in maternity classes.....	344	2,185	-----	2,529
21 Attendance.....	1,219	5,149	-----	6,368
E INFANT HYG 1 THRU 7 PRESCHOOL HYG 8 THRU 20:				
1 Individuals admitted to medical service.....	7,672	14,777	69	22,518
2 Individuals admitted to nursing service.....	21,767	27,066	155	48,988
3 Visits to medical conferences.....	18,967	32,970	92	52,029
4 Visits to private physicians.....	1,499	615	19	2,133
5 Field nursing visits.....	52,334	55,072	315	107,721
6 Office nursing visits.....	7,000	14,667	44	21,711
7 Other.....	162	120	-----	282
8 Individuals admitted to medical service.....	42,447	12,349	265	55,061
9 Individuals admitted to nursing service.....	28,606	19,483	182	48,271
10 Visits to medical conferences.....	51,197	20,042	276	71,515
11 Visits to private physicians.....	1,048	775	5	1,828
12 Field nursing visits.....	41,030	29,687	381	71,098
13 Office nursing visits.....	13,735	9,267	15	23,017
14 Inspectns dentists or dental hygienists.....	4,214	618	-----	4,832
15 Prophylaxis dentists or dental hygnsts.....	1,191	380	-----	1,571
16 Other.....	7,083	1,332	-----	8,415
17 Public lectures and talks.....	96	155	-----	251
18 Attendance.....	2,170	1,347	-----	3,517
19 Enrlmnt in infant and preschool classes.....	684	704	16	1,404
20 Attendance.....	822	4,817	16	5,655
F SCHOOL HYGIENE:				
1 Inspections by physicians or nurses.....	503,578	253,649	6,277	763,504
2 Examinations by physicians.....	119,284	18,150	1,006	138,440
3 Exams by phys with parents present.....	11,971	2,922	70	14,963
4 Individuals admitted to nursing service.....	44,010	9,770	118	53,898
5 Field nursing visits.....	46,006	11,711	186	57,903
6 Office nursing visits.....	27,266	6,474	96	33,836
7 Inspectns dentists or dental hygienists.....	127,724	67,753	700	196,177
8 Prophylaxis dentists or dental hygnsts.....	121,555	59,827	-----	181,382
9 Other.....	57,185	19,431	1,354	77,970
10 Public lectures and talks.....	2,507	566	31	3,104
11 Attendance.....	114,430	31,269	1,176	146,875
12 Classroom health talks.....	14,348	4,509	117	18,974
13 Attendance.....	379,417	135,026	1,987	516,430
G ADULT HYGIENE:				
Medical Examinations:				
1 Milk handlers.....	7,496	4,142	13	11,651
2 Other food handlers.....	32,188	22,452	270	54,910
3 Midwives.....	293	986	30	1,309
4 Teachers.....	4,783	2,005	2	6,790
5 Other.....	22,796	16,604	290	39,690

TABLE 2—Continued

	White	Colored	Indian	Total
H MORBIDITY SERVICE:				
1 Admissions to medical service.....	10,838	4,958	22	15,818
2 Admissions to nursing service.....	12,415	4,155	28	16,598
3 Clinic visits.....	17,552	9,717	27	27,296
4 Field medical visits.....	2,837	1,798	.....	4,635
5 Field nursing visits.....	24,805	13,608	46	38,459
6 Office nursing visits.....	12,195	2,668	.....	14,863
7 Admissions to hospitals.....	3,010	2,290	5	5,305
8 Total patient days of hospital service.....	25,784	23,481	23	49,288
9 Individuals admitted to dental service.....	4,926	4,090	41	9,051
10 Refractions.....	3,509	1,333	8	4,850
11 Tonsil and adenoid operations.....	1,800	451	44	2,295
12 Other.....	2,929	302	.....	3,231
I CRIPPLED CHILDREN SERVICE:				
1 Individuals admitted to medical service.....	4,513	1,367	127	6,007
2 Individuals admitted to nursing service.....	2,867	1,135	63	4,065
3 Visits to clinics.....	8,282	2,541	277	11,100
4 Nursing visits.....	8,263	3,283	106	11,652
5 Other.....	775	429	37	1,241
6 Public lectures and talks.....	80	12	3	95
7 Attendance.....	2,129	161	88	2,378
J GENERAL SANITATION:				
1 Arrpyd individual water supplis instlld.....	3,913	621	.....	4,534
2 New privies installed.....	10,176	4,028	2	14,206
3 New septic tanks installed.....	3,020	162	1	3,183
Field Visits:				
4 Private premises.....	144,988	82,360	18	227,366
5 Camp sites.....	3,156	339	.....	3,495
6 Swimming pools.....	785	63	.....	848
7 Barber shops and beauty parlors.....	238	30	.....	268
8 Schools.....	6,119	2,419	41	8,579
9 Public water supplies.....	.....	.....	.....	5,984
10 Sewerage plants.....	.....	.....	.....	5,197
11 Other.....	.....	.....	.....	50,971
12 Buildings mosquito proofed.....	.....	.....	.....	779
13 Minor drainage linear feet completed.....	.....	.....	.....	247,411
14 Anopheles breeding places eliminated.....	.....	.....	.....	5,022
15 Anopheles breeding places controlled.....	.....	.....	.....	5,266
16 Other.....	.....	.....	.....	73,406
17 Public lectures and talks.....	.....	.....	.....	418
18 Attendance.....	.....	.....	.....	22,745
K PROTECTION OF FOOD AND MILK:				
1 Food hndlng estblshmnts resgtrd supv.....	13,611	1,618	30	15,259
2 Field visits to food hndlng estblshmnts.....	108,490	13,507	118	122,115
3 Dairy farms regstrd for supervision.....	3,475	109	2	3,586
4 Field visits to dairy farms.....	27,561	233	13	27,807
5 Milk plants registered for supervision.....	616	8	2	626
6 Field visits to milk plants.....	9,270	54	7	9,331
7 Cows tuberculin tested.....	.....	.....	.....	43,662
8 Animals slaughtered under inspection.....	.....	.....	.....	256,183
9 Carcasses condemned in whole or in part.....	.....	.....	.....	47,457
10 Other.....	.....	.....	.....	43,509
11 Public lectures and talks.....	221	27	254	502
12 Attendance.....	8,773	1,647	.....	10,420

TABLE 2—Continued

	White	Colored	Indian	Total
L LABORATORY SPECIMENS EXAMINED:				
1 Water bacteriological.....				44,186
2 Water chemical.....				7,105
3 Milk or milk products.....				45,965
4 Other food.....				1,268
5 Typhoid blood cultures.....	73	37		110
6 Typhoid widal.....	290	38		328
7 Typhoid stool cultures.....	2,007	973		2,980
8 Typhoid urine cultures.....	99	113		212
9 Diphtheria cultures.....	8,804	2,575	12	11,391
10 Syphilis.....	292,550	296,367	851	589,768
11 Undulant fever human.....	843	261		1,104
12 Bangs disease animal.....				9,895
13 Typhus fever.....	63	12		75
14 Tularemia.....	9	1		10
15 Malaria.....	12,134	7,174	12	19,320
16 Gonorrhea.....	24,071	42,606	172	66,849
17 Tuberculosis.....	3,630	2,303	48	5,981
18 Feces for parasites.....	11,282	1,334	169	12,785
19 Urinalysis.....	24,730	48,123	360	73,153
20 Rabies.....				217
21 Other.....	13,191	11,907	20	25,118
M REPORTABLE DISEASES:				
Anthrax 20.....			1	1
Chickenpox 44A.....	6,595	898	17	7,510
Diphtheria 10.....	1,462	209	3	1,674
Dysentery 13.....	62	23		85
Gonorrhea 35.....	4,950	12,192	19	17,161
Hookworm 40.....	290	20	7	317
Influenza 11.....	1,634	348		1,382
Malaria 38.....	867	91		958
Measles 7.....	28,309	2,274	128	30,711
Meningococcus meningitis 18.....	517	56		603
Ophthalmia neonatorum 35.....	3	5		8
Pellagra 62.....	31	6		37
Pneumonia 107 109.....	236	125		361
Poliomyelitis 16.....	231	16		247
Puerperal septicemia 145.....	1			1
Rabies in man 21.....	5	1		6
Rabies in animal.....				46
Scarlet fever 8.....	4,466	222	27	4,715
Smallpox 6.....	48	33		81
Streptococci sore throat 115A.....	103	41		144
Syphilis 34.....	7,505	52,071	140	59,716
Trachoma 88.....	10	19		29
Tuberculosis 23 32.....	1,506	1,583	10	3,099
Tularemia 44C.....	9	8		17
Typhoid fever 1.....	162	85		247
Typhus fever 3.....	189	12		201
Undulant fever 5.....	25	4		29
Whooping cough 9.....	8,972	1,997	19	10,988
N POPULATION:				
1 Under one year.....	48,734	21,008	702	70,444
2 Under five years.....	259,345	112,996	3,663	375,998

TABLE 2—Continued

	White	Colored	Indian	Total
N POPULATION—Continued:				
3 Five to nine inclusive.....	265,131	115,375	3,335	383,841
4 Ten to fourteen inclusive.....	280,369	118,097	2,914	401,380
5 Fifteen and over.....	1,762,790	634,836	12,778	2,410,404
6 Number of practicing physicians.....	2,522	141	-----	2,663
7 Number of practicing dentists.....	720	80	-----	800
8 Number of practicing midwives.....	500	1,800	-----	2,300
O VITAL STATISTICS:				
1 Live births.....	107,120	42,490	1,591	151,201
2 Still births.....	1,973	1,552	26	3,551
3 Deaths under one year.....	3,849	2,298	87	6,234
4 Deaths under one month.....	2,514	1,263	39	3,816
5 Puerperal deaths.....	385	303	32	720
6 Total deaths.....	30,231	15,719	204	46,154
7 Typhoid and paratyphoid fever.....	105	96	-----	201
8 Measles.....	30	6	-----	36
9 Scarlet fever.....	8	1	-----	9
10 Whooping cough.....	39	25	-----	64
11 Diphtheria.....	49	5	-----	54
12 Tuberculosis all forms.....	751	1,023	8	1,782
13 Diarrhea and enteritis under two years.....	111	110	2	223
14 Number vital statistics visits.....	5,566	3,396	4	8,966
P COMMUNICABLE DISEASE CONTROL:				
1 Schick negative under age 10.....	30,225	8,402	367	38,994
2 Schick positive under age 10.....	4,090	1,141	67	5,298
3 Tuberculin negative under age 20.....	48,860	24,275	641	73,776
4 Tuberculin positive under age 20.....	12,626	7,642	125	20,393
5 Tuberculosis patients in barr cottages.....	11	13	-----	24
6 Atndc preventoria and open air classes.....	181	1	-----	182
7 Specimens collected for darkfield neg.....	279	1,656	-----	1,935
8 Specimens collected for darkfield pos.....	267	2,995	175	3,437
9 Syphilis treatments.....	162,336	1,261,022	3,483	1,426,841
10 Gonorrhea treatments.....	19,612	53,945	22	73,579
11 Chaneroid treatments.....	138	1,575	-----	1,713
Q INFANT PRESCHOOL AND SCHOOL HYGIENE:				
1 Children referred for medical care.....	114,331	30,187	826	145,344
2 Children with defects corrected.....	35,981	36,150	74	72,205
A Teeth.....	49,822	19,839	182	69,843
B Tonsils.....	10,706	995	104	11,805
C Eyes.....	6,997	1,664	76	8,737
R GENERAL SANITATION:				
1 Sewer connections new.....	2,546	263	2	2,811
2 Sewer connections restored.....	776	384	-----	1,160
3 Complaints investigated.....	22,214	6,506	33	29,053
4 New water connections.....	3,193	283	1	3,477
S GENERAL PUBLIC HEALTH INSTRUCTION:				
1 Newspaper articles published.....	-----	-----	-----	9,665
2 Circular letters sent out.....	-----	-----	-----	225,522
3 Bulletin posters distributed.....	-----	-----	-----	590,385
4 Health exhibits special demonstrations.....	-----	-----	-----	10,447
5 Radio talks.....	-----	-----	-----	678

TABLE 2—Continued

	Health Officer	Nurse	Sanitarian	V. D. Follow-up Worker and Other	Total
T ADMINISTRATION:					
1 Staff conferences.....	2,514	6,158	1,998	555	2,329
2 Meetings with official bodies.....	2,553	1,055	753	74	4,435
3 Court proceedings instituted.....	803	120	758	859	2,540
4 Meetings with non official bodies..	2,749	4,137	2,268	388	9,542
5 Conferences with officials.....	28,350	38,525	21,988	2,914	91,777
6 Conferences with physicians.....	19,782	27,744	3,386	3,338	54,250
7 Other conferences.....	76,977	190,967	112,486	48,259	428,689
8 Visits to schools.....	9,038	64,658	6,739	371	80,806
9 Hours in office.....	134,964	354,835	98,710	37,059	625,568
10 Hours in field.....	155,773	815,635	319,952	89,240	1,380,600
11 Miles traveled.....	1,447,014	3,680,636	2,016,724	155,701	7,300,075
12 Not home visits.....	3,242	39,148	7,127	39,428	88,945
13 Days off duty.....	1,932	9,104	3,262	693	14,991
		White	Colored	Indian	Total
REPORT OF COUNTY PHYSICIAN:					
1 No of Rx or examinations given at home.....		3,078	1,732		4,810
2 No of home visits.....		3,575	1,911		5,486
3 No of Rx or examinations given in office.....		16,452	12,742	79	29,273
4 Total visits under 3 to office.....		20,234	17,361	80	37,675
5 No of visits to county jail.....					6,918
6 No of Rx or exams given in county jail.....		8,334	8,175	143	16,652
7 No of visits to county home.....					6,097
8 No of Rx or exams given in county home.....		11,715	6,830	50	18,595
9 No of visits to County T B Hospital.....					2,145
10 No of Rx or exams given in Co T B Hosp.....		4,190	5,224	12	9,426
11 No of completed anti rabie treatments.....		190	15	1	206
12 No of treatments hookworm.....		660	94	53	807
13 No of examinations prisoners.....		5,411	5,532	125	11,068
14 No of examinations teachers.....		3,363	769		4,132
15 No of examinations child for industry.....		16,883	3,221	16	20,120
16 No of examinations by court order.....		328	187	1	516
17 No of exams for admission to institution.....		1,106	527	10	1,643
18 No of examinations for lunacy.....		818	618	9	1,445
19 No of examinations postmortem.....		82	117		199

DIVISION OF INDUSTRIAL HYGIENE

MEDICAL

This biennial report covers the period from July 1, 1942 through June 30, 1944. During this period the greater part of our effort was directed toward the examination of men employed in producing essential materials for the war effort. Heading this list of materials is mica. Ranking along with it in importance is the asbestos textile products. Feldspar probably comes second to the above two. Since mica and feldspar occur together in nature, it is difficult to separate mica workers from feldspar workers; and for this reason, these employees are included under one heading, "mica and feldspar." Early in the period covered by this report, a conference was held in Asheville attended by representatives of the various mining industries, insurance carriers, Industrial Commission, the Rating Bureau, and the Division of Industrial Hygiene. Plans were made for the prompt examination of the various employees of the mining industry in the state. Since that time, the examining unit has periodically visited these mining areas and has examined hundreds of men employed, or about to be employed for the purpose of providing mica and feldspar for the war effort.

The ever increasing demands for more and more asbestos products have also made it necessary that this group of employees be kept up-to-date with their examinations. This will explain why the following medical table shows that by far the greater number of men examined fall under the heading of: 1. mica and feldspar and 2. asbestos textile groups.

The period covered by this report has also witnessed a pronounced increase of interest in tuberculosis among the various industries of the state. A tuberculosis case finding program has developed as a result of this increased interest. This program has been taken on by this Division but has of necessity assumed a place of secondary importance because of the legal requirements which makes necessary the routine examination of employees in the dusty trades. In other words the examination of the men in the dusty trades has claimed first consideration, while tuberculosis control work has taken the greater part of what was left. It should be borne in mind that the examinations made for the dusty trades include both physical and chest x-ray examinations, while in the tuberculosis case finding program, chest x-ray only has been done. This explains why we have been able to reach so many more employees in the tuberculosis program.

In the past 14" x 17" chest films have been made routinely, but during the period covered by this report, we have experimented with two of the miniature x-ray units and one (4" x 5") has been purchased and added to our previous equipment. This enables us to produce films at about one-fifth the cost of the previously used conventional

film. This enables us to make a great many more examinations than would, otherwise, be possible with the budget provided.

We have had perhaps more than our share of headaches from personnel changes; one having been removed by death; another by the armed forces; others by other institutions and industries paying higher salaries; and others by the usual turnover. But in spite of these and other handicaps, this Division has been able to accomplish as much and probably more than in any other two-year period of its existence. A study of the following table will doubtless substantiate the truth of this statement. It will be noted that more than 3,000 chest examinations, including physical and x-ray, have been made. In addition to this more than 43,000 additional chests have been x-rayed in the tuberculosis survey. These have been made by means of two of the miniature units, one of which require that approximately five per cent of the chests be re-x-rayed with a larger film. These added to the above routine chest examinations totaled approximately 50,000 chests x-rayed during the last two years.

ENGINEERING

The turnover in personnel among the engineering group has been heavy—not one individual now in the group having been here at the beginning of this period.

Their efforts have also largely been devoted to those industries engaged in war work. Chief among these were the various mica mines, munition plants, shipyards, and asbestos textile industries. The immense increase in demand for mica of various kinds brought about an enormous increase in the number of mines in Western North Carolina. We have made a concerted effort to visit all these operations for the purpose of either making dust counts or comparing their present condition with reports previously rendered. Because of lack of personnel and sufficient funds in the budget, it had previously been decided that dust counts be made every second year and inspections made the following year. Because of the enormous task and also because some of these operations were shortlived, it has been impractical to obtain even inspections on some of the operations. It is not altogether unusual for an operation to open, live its life and close before our engineers had an opportunity to visit that particular operation. However, we have done the best we could under prevailing conditions. There are so many operations in the Spruce Pine vicinity that we have found it advisable to move one engineer to that area for the past two summers. This has enabled him to save considerable travel as well as visit a great many more mines than would otherwise be possible. Formerly, dust counting equipment was carried into the field and the actual counts made in the hotel room or other available locations. This required approximately one-half of the engineer's time to make his counts and keep his glassware in order. We have recently changed this procedure by shipping all samples back to the laboratory here in Raleigh where this work can be done much

more satisfactorily and economically. This change of practice enables the engineer to cover approximate twice the number of plants in the given length of time. It also eliminates travel expense.

The munition plant near Charlotte has also added its occupational disease hazard chiefly in the handling of tetryl and T.N.T. The munition plant in Carrboro also presents a tetryl exposure, while the shipyard in Wilmington has presented a number of problems, not the least of which is lead exposures. The other shipyards along the east coast have also received attention.

Reference to the following engineering table probably best illustrates the increased engineering activities for this biennium.

MEDICAL

	<i>Previous Years</i>	<i>1940-42</i>	<i>1942-44</i>	<i>Grand Total</i>
Examinations—Clinical and x-ray....	9,766	5,928	3,419	19,113
1. Mica and Spar.....	2,372			
2. Asbestos.....	902			
3. Stone Cutting.....	51			
4. Talc.....	94			
Blood Specimens Collected	5,880	5,800	2,065	13,745
Autopsies	5	3	1	9
Compensation Hearings	27	29	14	70
Case Reports.....	12	35	10	47
Tuberculosis Survey Examinations....			43,427	43,427

ENGINEERING

	<i>Previous Years</i>	<i>1940-42</i>	<i>1942-44</i>	<i>Grand Total</i>
Impinger Dust Samples Collected.....	1,277	444	628	2,349
Other Samples Collected.....	23	13	221	257
Exhaust Ventilating Systems Designed....	11	50	17	78
Plants Visited for Dust Counts.....	118	91	142	351
Plants Visited for Inspection.....	43	170	408	621
Plants Visited for Special Study.....	109	21	94	224
Reports Prepared.....	77	144	510	731
Conferences with Company Officials.....			61	61
Industrial Hearings.....	17	5	2	24

NUTRITION IMPROVEMENT PROGRAM of THE STATE BOARD OF HEALTH

The North Carolina State Board of Health first manifested practical interest in the possibilities of improving the public health through better nutrition in 1939. In that year it placed a qualified nutritionist on the staff of the "School Health Coördinating Service," and completed groundwork for the inauguration of the "Coöperative Nutrition Study" in January, 1940. Furthermore the North Carolina State Nutrition Committee was organized early in 1940, for the primary purpose of serving as an advisory board to the Coöperative Nutrition Study.

Following the National Nutrition Conference called by President Roosevelt in 1941, a tremendous wave of public interest in nutrition swept the entire country. All states were requested to proceed with the organization of State Nutrition Committees. These, in turn, were given the responsibility of organizing County and City Nutrition Committees and of assisting them in the formulation and execution of effective nutrition programs in local communities. Since North Carolina already had a State Nutrition Committee the principal action immediately called for seemed to be the expansion of the membership to include representatives of as many as possible of the official and non-official agencies in the state which were interested in nutrition. The present membership represents the State Departments of Agriculture, Agricultural Extension Service, Education, Health, and Welfare, and the Federal Farm Security Administration; Universities and Colleges in the state; the Red Cross; Home Economics Association; Home Economics Women in Business; and other voluntary groups.

Many of the agencies represented on this Committee have for years spent much time toward the promotion of better nutrition. In organizing the Committee, therefore, there was no thought of duplicating or of usurping any of the efforts of these workers but rather of amplifying them and of meeting needs that were not already being met.

In view of the many preventive aspects of the nutrition problem as well as the important part which food may play in the maintenance of that physical condition which is a little better than just "good health," plans are now being matured whereby the State Board of Health will contribute a service which heretofore has not been included in its program. To implement this service a Division of Nutrition is being organized which will consist of a medical nutritionist, a principal nutritionist, and several senior nutritionists. The plan also contemplates the gradual augmentation of the personnel of County Health Departments by the addition to their staffs of a Coördinator or Health Educator, whose training and experience will include nutrition.

Lack of qualified nutritionists made it impractical to plan a definite program of work for the proposed Division of Nutrition prior to 1944. The coöperative work undertaken with the State Nutrition Committee

in 1942-43, however, served as valuable experience. During that period nutrition committees were organized in 96 of the 100 counties of North Carolina and nutrition projects were undertaken, including the dissemination of information through press, radio, literature, movies, and simplified nutrition instruction; food production, including victory gardens, food conservation, and industrial feeding. In many counties the school lunch program was stepped-up considerably and added emphasis was given the teaching (laboratory) aspects of this facility. The State Nutrition Committee sponsored a food conservation campaign in 1943, which increased the annual number of cans of food processed about sevenfold. The State Committee also sponsored in every county the "Share-the-Meat" and the "Food Fights For Freedom" campaigns for the War Food Administration.

With the addition of a Principal Nutritionist to the State Board of Health personnel in January, 1944, a nutrition demonstration was commenced in Greene County, and our nutritionists participated in conducting nutrition courses at the University of North Carolina for the benefit of "Health Educators." These activities, plus nutrition teaching at Woman's College and Bennett College, Greensboro, during the summer of 1944, constituted our principal program for the fourth quarter of the biennium 1942-1944.

For Biennial report of the State Board of Health for the period July 1, 1942, to June 30, 1944.

THE NORTH CAROLINA NUTRITION STUDY

The Coöperative Nutrition Study was organized in North Carolina nearly five years ago to appraise the nutritional status of the population by the best means available and to recommend procedures for improvement. This survey was called for as the result of rather depressing reports from extensive, though partial surveys, made by government agencies of the nutritional status in southern regions of the U. S. A. The statement was used that probably 40 per cent or more of the population was undernourished and needing a program of improvement if national calamity were to be averted. The plan in North Carolina was to get more accurate information on the nutritional status of the population of this state as a guide to more definite program of improvement.

In the succeeding four years detailed and careful surveys have been made in three counties using all the methods and techniques which offered promise of information of value on this problem. The counties of Chatham, Wayne and Alamance have been the scenes of these rather intensive and detailed surveys and comprehensive reports have been made twice yearly and frequent writeups for wider distribution. Throughout this period the belief has grown that the malnutrition problem in North Carolina is much less acute than was originally thought and is not the disabling condition that earlier reports led one to expect. This is not to say that malnutrition is not a great problem, but merely that the definition of effects of such partial malnutrition as exists is almost impossible and that the disabling effects have probably been greatly overstated.

Of the available methods of study three groups of techniques were used: (1) the recording of foods actually eaten by each individual in seven consecutive days; (2) a thorough physical examination looking for possible signs that would indicate specific effects of any malnutrition that might be present; and (3) laboratory examination of a blood sample to look for more hidden signs of deficiency in the blood.

The results of the studies in the three counties are so similar that they can be condensed into some generalized statements covering them all. The first is that definite physical signs of malnutrition in populations surveyed are extremely rare and when present can frequently be explained as due to other causes. Most of these signs are also produced by other conditions and only in the face of extreme privation do they appear as certainly the result of malnutrition. Such signs have been delineated as quite specific for malnutrition in less favored regions of the world where nutrition is at a much lower level than in our favored country. The statement justified that the physical signs of malnutrition since they are so rare here are possibly or even probably due to other causes. This applies to conditions involving the skin, the eyes and the peripheral nervous system. Most

revealing in North Carolina is the condition of the mouth, lips, tongue, gums, teeth for it is here that pellagra, scurvy and some other deficiencies are most readily diagnosed. In the period of this study pellagra has almost disappeared from hospital practice and presumably is at the present time quite infrequent in the state. Scurvy from vitamin C deficiency in its completely developed form is almost never seen. The mildest forms of vitamin C deficiency are probably most important in school children. Other mild vitamin deficiencies such as those of thiamin and riboflavin are of quite questionable status since the signs recommended for this diagnosis are quite nonspecific and are not frequently found. Deficiency in iron intake with resultant of anemia does seem to be a very widespread condition. Vitamin A deficiency, as shown by signs in the skin or eyes, is apparently a very rare finding. Other deficiencies are also so very infrequent and of uncertain diagnosis.

If only the recorded food intake is considered the diet of most North Carolinians is far below that which is recommended as adequate. These individual records of intake are naturally approximations only and contain many inaccuracies. They are an index to intake and show trends and for groups of individuals are quite informing though perhaps unreliable for a single record. In general calorie intakes of surveyed populations in North Carolina are not more than two-thirds of the recommended level for the same age, sex and activity groups. This does not mean that available energy here is decreased by one-third, since quite evidently when calories are available most individuals will get what is needed by each, and calorie foods are very accessible in North Carolina. The percentage of fat in the diet here approximates 40 per cent of total calories, a level which is considered a luxury level in any land. Protein intake is approximately 14 per cent of the total calories of the diet and this again is quite a satisfactory level. The average intakes of vitamins A and C, thiamin and riboflavin are all far below the recommended daily allowances of the National Research Council. The significance of these levels is a matter needing critical appraisal since every evidence we have in this state points to a luxury rather than essential level in those official figures. Whether or not the higher intakes lead to increased energy, vitality and joy of living remains to be demonstrated. Most easily to be improved is the deficiency in vitamin C, a condition most important in children of school age or lower. The deficiency in iron intake undoubtedly is an important factor in the anemia of low grade which is so widespread in the state and improvement in the intake of the B complex vitamins would undoubtedly be of some value in the health of the people, though it is far from demonstrated that the present levels are leading to any measurable adverse effect.

This whole matter can be summarized by stating that the nutritional status of the population of the state, as judged by the sample surveys

made, while not satisfactory is still not distressing, except in very limited groups, and is causing no great loss of health and efficiency. Judged by the recorded intakes the dietary of the population does need considerable revision and improvement and an active program to this end is certainly indicated. Its effect on health could probably not be demonstrated for many years to come, but would be another of the several programs whose success would tend to reduce the high incidence of physically unfit individuals as revealed by the recent draft board examinations. Nutrition improvement should be included in an overall program of welfare planning to this end.

SCHOOL-HEALTH COORDINATING SERVICE

The School-Health Coördinating Service began operations in 1939 and has continued its activities since that time. It is a joint operation of the State Board of Health and the State Department of Public Instruction, maintained by a joint budget which is contributed to by each department. The budget is also supported by two organizations within The Rockefeller Foundation: the International Health Division and the General Education Board.

The reason for the joint activity lies in the realization by both departments that, working separately, the fullest benefits to the children cannot be achieved.

When first organized, the School-Health Service was a unique department in the United States. Since then at least three states have set up similar departments, stimulated perhaps by North Carolina's pioneer work.

The purpose of the School-Health Service is to train teachers to do a large share of the health instruction in their daily contact with the pupils and, in coöperation with the local health departments, to simplify and facilitate health service for the school children. To fulfil this purpose, three approaches have been utilized, (a) Teacher Colleges, (b) Summer Conferences, and (c) In-Service Training.

There are three white and three Negro *Teacher Colleges* in the State, but nearly all colleges now operating in North Carolina train teachers. Stimulated in part by the School-Health organization, several Teacher Colleges are now preparing to give the necessary health instruction while the students are receiving their teacher training. This is a slow development, as faculty, curriculum, time, and funds must be found, but these points are receiving active consideration. This is a program which the Teacher Colleges are anxious to develop.

Summer Conferences have been held each year since 1940 at the Woman's College, at the University, at the North Carolina College for Negroes; and at Bennett College since 1941. The number of teachers who have been trained in the Conferences since July, 1942, are 410 (153 white and 257 colored). In addition, at the same conferences, training was given to 67 teachers (32 white and 35 colored) from outside the State. The Conferences last six weeks and the teachers receive six semester hours credit, either graduate or undergraduate. The Conference which was to be held at the University in 1944 was cancelled on account of the poliomyelitis epidemic. The funds required for running the Summer Conferences, including scholarships and general expenses, have been provided by the General Education Board. These Conferences should be continued indefinitely, as they furnish to those already graduated, the only means of acquiring essential health information. The funds promised by the General Education Board have already been exhausted.

In-Service Training occupies the major part of the time of the staff. Upon invitation by the county school and health authorities, the staff

enters a county and works in the schools for a period of two months, by means of group conferences and by means of visits to individual schools. In this work, instruction is given to all teachers, high and elementary, in health service, health instruction, healthful school living, nutrition, and physical education, as follows:

Health Service: Screening and eliciting defects by looking into the subjects of height, weight, eyes, ears, hair, skin, scalp, nose, throat, neck, teeth, hands, feet, signs of anemia, signs of malnutrition, posture, orthopedic defects, mental habits; making home visits.

Health Instruction includes (a) *Personal Hygiene*, which embraces such health habits as, the protection needed when sneezing and coughing, hand washing before eating and after using the toilet, eating, resting sleeping, playing, clothing, and cleanliness; safety; and (b) *Communicable Diseases*, such as, common colds, measles, German measles, whooping cough, diphtheria, scarlet fever, acute rheumatic fever, mumps, hookworm, malaria; syphilis and gonorrhea, tuberculosis, pellegra, typhoid, and other communicable diseases; immunizations (smallpox, diphtheria, and typhoid).

Healthful School Living, another expression of general sanitation, which includes: drinking fountains, wash basins, toilets and urinals, heating, ventilation, lighting, cleanliness, janitor service, lockers, drying room, isolation room, desks or tables, seats, first aid equipment, outdoors.

Nutrition is an important development. The matter is presented to teachers by: lectures to teachers on nutrition problems as found in school children; nutrition teaching in high school, and elementary, and primary grades; school lunchrooms; home visiting and local nutrition committees.

Physical Education. The health attention which the child gets equips him to participate in physical education. The approach is through (a) *Elementary Schools*: organization and administration of a physical education program; methods and materials in physical education; and activities: rhythms, mimetics, stunts, relays, organized team games, games suitable for indoors and outdoors, and (b) *High Schools*: instruction in sports and games, conditioning exercises, obstacle course, tumbling gymnastics, relays, combatives, and rhythms.

On the completion of the work in the county the teachers, assisted by the local nurses, are informed about and can carry out such measures as, screening, weighing, measuring, examining the eyes, ears, nose, throat, skin, hair of the children. They can determine whether or not the posture is good and what should be done about it. The teachers have acquired also a good deal of information concerning malnutrition, foods, and their values, a minimum of information about communicable diseases, sanitation of the school building and the grounds, and the best methods of pursuing physical education in both the elementary and high schools.

Screening consists in dividing the children into two groups: those who need the attention of the doctor, and those who do not need to see him. This procedure has simplified and lessened the work of the health authorities and has enabled each child to be seen by the doctor as soon as he needs to be seen. In every county in which the school-health work has been done, every child has been screened, and those needing attention, have been seen by specialists. In getting the defects corrected, the specialists have been most coöperative.

Screening shows that from ten to fifteen per cent of the children require the attention of specialists who are particularly interested in conditions of the eyes, ears, nose, throat, and teeth. The other defects are minor and can be taken care of by the teacher and parent under the direction of the nurse and health officer.

Since July, 1942, the white and colored schools in the following counties have been visited for In-Service instruction: Durham, Alamance, Nash, Edgecombe, Pitt, Sampson, Greene, and the city of Rocky Mount. There is considerable competition among county and city school systems for work of this sort.

In all these schools, every teacher has been instructed in subjects already mentioned. All school children have been screened and those needing attention have been examined, the defects defined, and in many instances, attended to. The number of schools visited were 282 (56 high, 226 elementary); the number of teachers reached 1,574 (417 high, 1,157 elementary); and the number of school children reached, 55,090 (14,595 high, 40,495 elementary).

Staff. The staff used for In-Service Training is provided in part by the State Board of Health and in part by the State Department of Public Instruction. At present, they number ten: two doctors, three public health nurses, three health and physical education advisers, two nutritionists. Of this number, one doctor, one nurse, one health and physical education adviser, and one nutritionist are colored and work in the colored schools. In the budget for this year are items for one health educationist and one psychiatrist. When this additional staff is employed, the unit of field workers will be complete.

Local Coördinators. Experience has shown that to be effective and lasting, there must be employed in the county a particular person whose duty will be to carry on the work after the school-health staff leaves. In order to develop this phase of the work, it was decided to train teachers in health education. The General Education Board was approached. Its officers supported the idea and awarded ten scholarships valued up to \$2,000 each to be used to train teachers in health education over a period of twelve months at the University of North Carolina's School of Public Health. On the completion of the training, the teachers will return to the county to work under the school-health authorities. Candidates are now being selected by the local school and health authorities. Those accepted will enter the University in September, 1944, and be ready for county work in September, 1945. When this development is well established, it is believed that the school-health work will be enormously advanced in all its aspects, including health instruction and health service.

PUBLICITY SERVICE

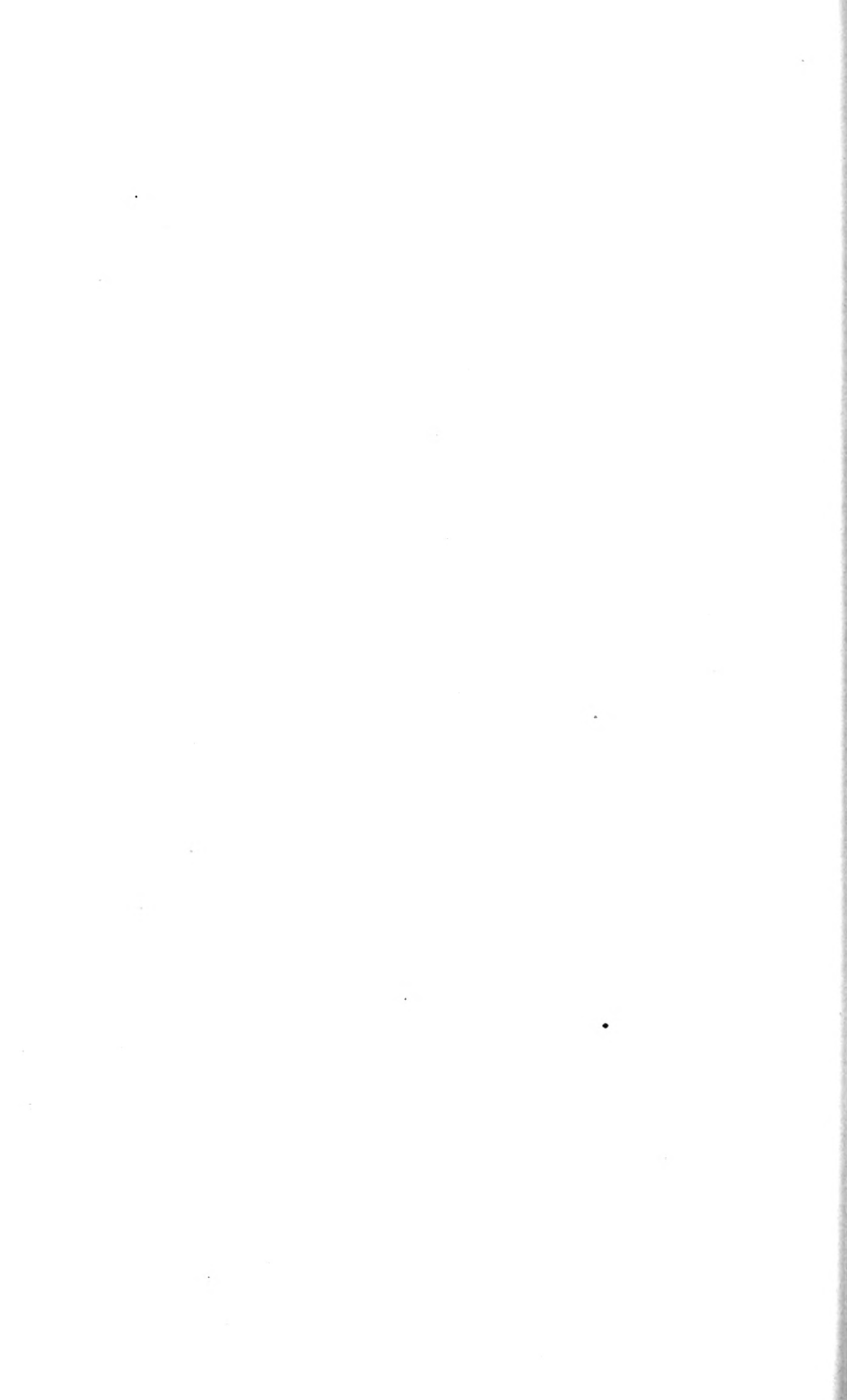
During the period covered by this report, July 1, 1942-June 30, 1944, the State Board of Health's Senior Publicity Specialist, attached to the Division of Central Administration, has continued to write, edit and furnish the State's approximately 200 newspapers with current information and special articles dealing with the Board's various activities. He has worked in coöperation with such organizations as the American Red Cross, the North Carolina Tuberculosis Association and other organizations and groups designed to promote health, writing articles and delivering broadcasts in their behalf.

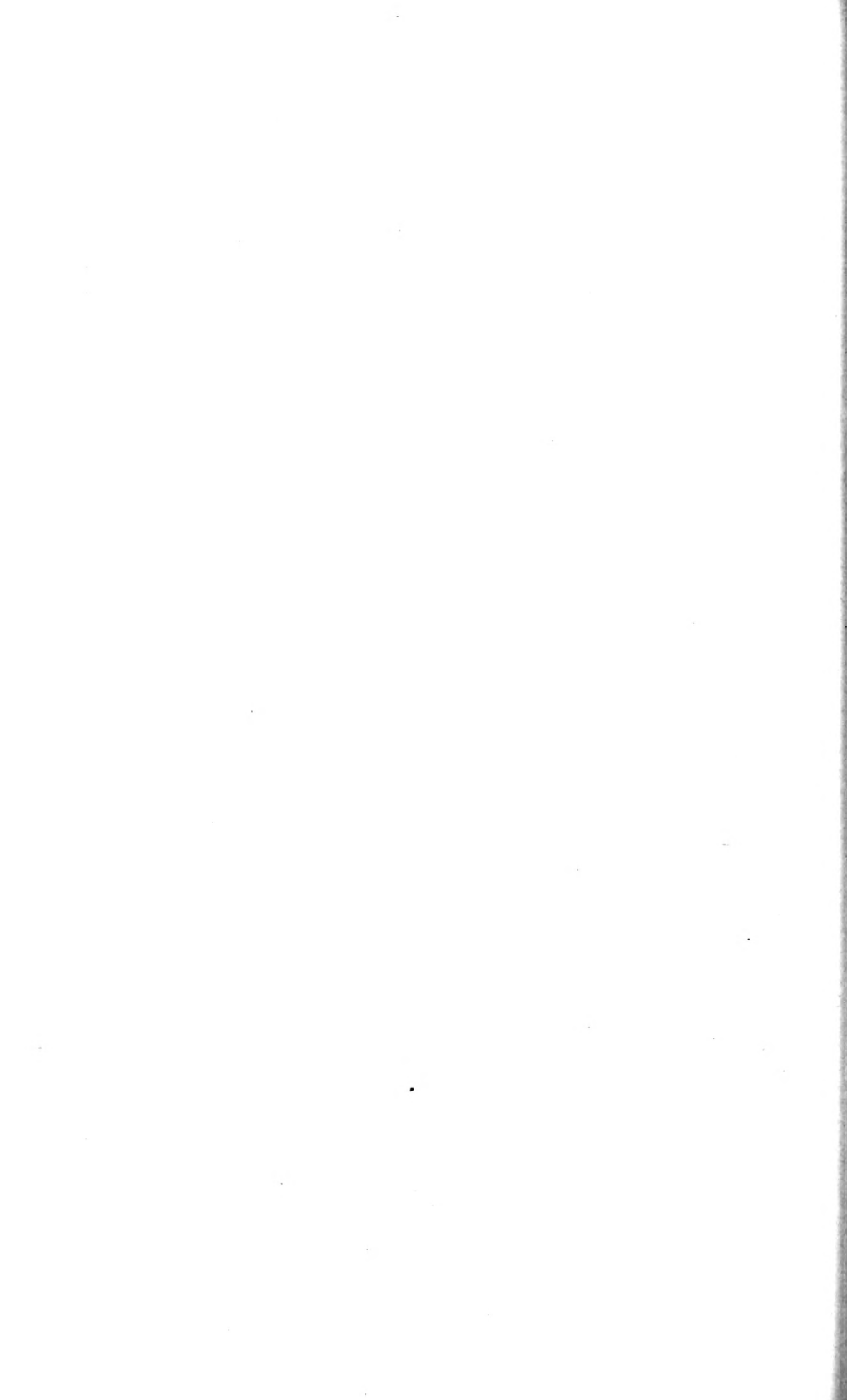
Following a precedent set in 1938, the Publicity Specialist has reported annually the proceedings of the Medical Society of the State of North Carolina, and, as a member of the Publicity Committee of the State Nutrition Committee, has written numerous articles and given a number of broadcasts on the subject of nutrition, working in coöperation with Dr. John F. Kendrick, under the supervision of the State Health Officer.

He made approximately 100 regular weekly broadcasts over Station WPTF at Raleigh and in times of emergency, including the poliomyelitis epidemic, has made special broadcasts over the Raleigh station and furnished material to the 28 other radio stations of the State, for special (or spot) broadcasts.

Newspapers, radio stations and other media of publicity have given their hearty coöperation to all efforts to keep the people of North Carolina constantly advised on public health matters.

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